A Clinical Lecture
ON
THE SURGERY OF THE URETER FOR IMPACTED CALCULUS AND SOME OTHER CAUSES OF OBSTRUCTION.

Delivered at the Medical Graduates' College and Polyclinic

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GENTLEMEN,—Operations on the ureter, even in these days of active surgical interference, are of comparatively rare occurrence. By a singular coincidence three cases illustrating various phases of ureteral surgery were recently operated on by me on the same day at St. Peter's Hospital. One of the patients is present here to-day and I propose taking advantage of the occasion to review briefly the present position of surgery of the ureter for obstruction of that canal, particularly with reference to stone impacted therein, illustrating its various aspects by examples from my own practice.

The symptoms of renal and vesical calculus are generally well defined and characteristic. Those of stone in the ureter are, as a rule, extremely obscure. Indeed, it is only when the stone is impacted in the lower end of the ureter that a definite diagnosis can be ventured on. A stone travelling down from the kidney to the bladder may be arrested in any part of the ureter where it meets with a contraction, curve, or valvular process of mucous membrane; but the situations in which it is most likely to get impacted are—(1) at a point two inches from the commencement of the ureter; (2) at the brim of the pelvis; and (3) at the vesical end of the canal. When we speak of renal calculus we include not only one imbedded in the substance of the kidney but also one lying in the pelvis or calices of that organ. And this being so I know of no symptoms by which we can, with anything approaching certainty, distinguish between a kidney stone lying in the pelvis and one impacted in the ureter at any position above an inch or two from its vesical orifice. The symptoms of a stone lying in any position along the greater part of the course of the ureter are, to all intents and purposes, the same as those of a stone lying in the renal pelvis and obstructing the ureter. It is true that a ureteral calculus blocking the passage will give rise to hydronephrosis on the affected side; but so may a pelvic stone; and if both ureters be blocked in this way calculous anuria will result. The x rays may assist us in forming a diagnosis, but this adjunct is even less satisfactory than in the case of renal calculus. It is also possible that a stone impacted in the ureter may give rise to pain or tenderness at the seat of impaction when deep pressure is made along its course, and this, combined with other symptoms, may lead us to suspect the nature of the disease. But the probabilities are so strongly against a definite diagnosis that the recognised rule of surgery in all such cases is to explore the kidney for stone in the first instance by the lumbar method; and if it be not found there to examine the ureter by a bougie or probe passed down through the pelvis; and if a stone be thus found to extend the lumbar incision parallel with Poupart's ligament sufficiently far to enable us to reach the stone and to extract it. When, however, the stone is impacted in the lower end of the ureter at or near its vesical orifice it generally admits of recognition, as we shall presently see.

I need scarcely tell you that when after repeated attacks of renal colic all the kidney symptoms cease and are replaced by those of stone in the bladder you will come to the conclusion that the stone has made its way down the ureter and that it is lying in the bladder. I could give you details of numerous cases from my own practice with a history of this kind in which I detected the stone in the bladder and removed it by litholapaxy. But when the usual symptoms cease and are followed by vesical symptoms, and no stone can be detected by the sound, you should suspect its impaction in the vesical end of the ureter, for a stone lodged in this position may give rise to all the symptoms of vesical calculus. How are we to diagnose a stone situated in this position? Introduce, in the first instance, the forefinger into the rectum, the patient lying on his back, and with the other hand make deep pressure above the pubes, when you may feel the stone as a hard nodule lying in the ureter beyond the trigone of the bladder. In the female it may be similarly detected by introducing the finger into the vagina. Then, again, if the stone project from the ureteral orifice into the bladder it may possibly be felt by the sound; or in the female the urethra may be dilated, a finger introduced into the bladder, and the calculus detected in this manner. But in Leiter's electric cystoscope we possess the most important and reliable means of diagnosing a calculus lying in the lower end of the ureter or projecting from its orifice. By this instrument I have in recent years detected several calculi lying in this position which were not recognisable in any other way. The cases which I shall now detail to you will illustrate the difficulties or facilities attaching to the diagnosis of stone impacted in the ureter, as well as the methods of dealing with it surgically, according to the position which it occupies along the course of that canal.

CASE 1. *Calculus impacted in the left ureter two inches below the pelvis of the kidney; successful uretero-lithotomy.*—The patient, a male, aged 28 years, was admitted to St. Peter's Hospital on Sept. 9th, 1902, with symptoms of calculus in the left kidney of 14 months' duration. There had been several attacks of left renal colic, each lasting about a week, and accompanied usually by hæmaturia. The pain commenced in the loin and at times extended into the corresponding groin and also into the testicle. The pain was absent at one period for two months, but had lately recurred with increased severity. Left renal calculus being diagnosed, I explored the kidney on Sept. 17th by the usual oblique incision in the left loin. No stone being found in the kidney, even after withdrawing it on to the loin and introducing the finger through an incision in its convex border into the pelvis, the lumbar incision was extended downwards an inch or two and the ureter traced downwards when a stone was felt impacted therein two inches from the pelvis of the kidney. It was found impossible to push the stone up into the pelvis, so a longitudinal incision was made in the ureter over the stone, which was thus extracted. No sutures were introduced into the ureter but a drainage-tube was inserted as far as the ureteral wound. Urine drained by the wound for four days and then ceased. The wound was thoroughly healed by Oct. 16th, when the patient went home and has had no trouble since. The calculus was a rough oxalate one of the size of a date-stone.

CASE 2. *Calculus impacted in the right ureter four inches below the pelvis of the kidney; uretero-lithotomy; cure.*—An artillery officer, aged 23 years, consulted me on July 19th, 1898, on the advice of Dr. Charles Blood, then of Woolwich. He had had renal colic with hæmaturia off and on for 19 months. A week previously the pain in the right loin, accompanied by vomiting and constant desire to micturate, was so prolonged and excruciating that he had to be kept under the influence of morphia for 72 hours. I found the right kidney greatly enlarged and tender, also acute pain on pressure on a spot midway between the umbilicus and the anterior superior spine of the ileum. The urine contained blood, albumin, and crystals of oxalate of lime. The case was diagnosed as one of stone in the pelvis of the kidney causing obstruction. On July 30th, Dr. M. A. MacDonnell, M.P., and Dr. H. T. Griffiths being present, I explored the right kidney by an oblique lumbar incision. The kidney was much enlarged, congested, and soft. It was withdrawn on to the loin and incised through the convex border, when a rush of urine took place through the wound. A finger was introduced through the wound and the pelvis and calices, which formed a large, irregular, smooth-walled cavity, were explored, but no stone was found. A bougie passed down the ureter was arrested four inches from the renal pelvis. Replacing the bougie by a long silver probe a stone was felt at this point. The incision in the loin was then prolonged downwards for four inches and the ureter traced down till I felt the stone impacted therein of the size of a filbert. I attempted to push the stone up into the pelvis but without success. A longitudinal incision was made in the ureter over the calculus, which was thus removed. A bougie was then passed readily through the ureter into the bladder. No sutures were inserted in the ureter, but a drainage-tube was placed in the lumbar wound as far as the ureteral wound. Urine flowed through the loin for nine days and then ceased. The patient made a rapid recovery and left the Surgical Home on Sept. 7th and has since enjoyed good health.

It may be of interest, as bearing on the hereditary tendency of stone, to mention that on Sept. 28th, 1898, I removed successfully 13 calculi from the kidney of this patient's mother, who had suffered for 17 years, and that her father had suffered from gravel for several years before his death.

CASE 3. *Calculus impacted in the ureter one inch above the vesical orifice; vaginal uretero-lithotomy; successful result.*—A married woman, aged 42 years, was seen in consultation with Dr. A. Crombie on July 30th, 1902. She was suffering from left renal colic for a fortnight, with pains shooting down the groin; also hæmaturia. There were intense pain and tenderness in the groin. There was a small hard lump of the size of a pea felt high up in the vagina on the left side near the cervix uteri. The case was complicated by fever, the nature of which it was difficult to ascertain, as the patient had resided many years in India, thus arousing suspicions of malaria. Next day I examined her cystoscopically under an anæsthetic. The left ureteral opening was pouting but no stone was seen; the bladder was healthy. I dilated the urethra and introduced my finger. Between this and a finger in the vagina the stone could be felt in the ureter about an inch from the bladder. I endeavoured to push it down into the bladder but unsuccessfully. The patient was placed on a course of Contrexéville water and salines, but no improvement taking place I performed uretero-vaginal lithotomy on August 15th. A sharp hook was passed through the vaginal wall above the calculus for the purpose of fixing the latter, which was then cut down on till grating was felt. In attempting to remove the stone by the finger and forceps it slipped up the ureter but was found next day in the dressings. It was an oxalate-of-lime stone, of the size of a large pea. There was a smaller stone also found of the size of a grain of No. 2 shot. Urine passed through the fistula for a few days and then ceased. Symptoms of pelvic cellulitis supervened and the patient made a very slow recovery; she is now well, though there are suspicions that she is still suffering from a stone in the left kidney.

CASE 4. *Calculus impacted in the lower end of the ureter; retroperitoneal uretero-lithotomy; cure.*—A female, aged 18 years, came to St. Peter's Hospital on July 25th, 1902, with a history of left renal colic of 18 months' duration. The pain frequently recurred, sometimes daily, and shot downwards from the loin to the groin. It was very severe, "doubling her up," and attended by nausea, vomiting, and profuse perspiration. Hæmaturia was observed on several occasions. There were no enlargement of the kidney and no tenderness on pressure. Getting no better under treatment as an outpatient she was admitted and on Sept. 12th was examined under an anæsthetic. Cystoscopy revealed nothing abnormal about the ureteral openings. A small hard nodule of the size of a split pea was felt high up in the vagina on the left, to the outer side of the cervix uteri, and this was diagnosed to be a stone in the lower part of the ureter. On the 19th I operated, commencing by an incision four inches long, as for ligature of the left external iliac artery. The dissection was then carried through the abdominal wall down to the subperitoneal tissue. The peritoneum was raised inwards off the upper pelvic walls, exposing the iliac vessels, when the ureter was recognised adherent to the peritoneum and crossing the artery, and was traced down into the true pelvis behind the walls of Douglas's pouch. A small stone being felt in the ureter one inch from the bladder, a longitudinal incision was made in the dilated ureter a short distance above this, it being found impossible to reach the stone with the knife owing to its depth in the pelvis. The incision was immediately followed by a rush of urine. The calculus was grasped by sinus forceps introduced through the ureteral incision and, breaking into fragments, was removed piecemeal. The calculus consisted of uric acid and weighed only five grains. The ureteral wound was closed by fine interrupted silk sutures, a gauze drain was introduced, and the abdominal wound closed by silkworm sutures. In spite of the sutures in the ureter the wound leaked, some urine passing in this way for a few days. The case did well, however, and the patient was discharged cured on Oct. 18th.

CASE 5. *Diverticulum of the ureter forming a cystic tumour in the bladder containing two calculi; removal by suprapubic cystotomy; cure.*—An officer, aged 36 years, consulted me on Sept. 21st, 1896, on his return from Burma, on the advice of Major A. O. Evans, I.M.S. He dated his illness to a fall on his back ten years previously. For two years after this he suffered periodically from pain in his right loin, hæmaturia, and frequency of micturition. The kidney symptoms then practically ceased and were replaced by bladder symptoms which had progressively increased—viz., frequency of micturition and pain accompanying the act, intermittency of the flow, inability to empty the bladder except by lying down or passing a catheter, and pus in the urine periodically in large quantities. There had been no blood since 1890. He had been sounded by several surgeons besides myself with negative results. On cystoscopic examination I discovered a tumour of the size of a walnut growing from the right posterior aspect of the bladder, with a smooth glistening surface and attached by a broad, short pedicle. I opened the bladder suprapubically on Sept. 29th and felt a slightly dilated tumour attached to the right side of the base of the bladder by a round, tense pedicle as thick as my thumb. The tumour was grasped by forceps and brought up into the wound, when it was felt to be quite hard. On scraping it by the finger-nail to my astonishment it was found to contain two oval, smooth calculi, one of the size of a nutmeg (29 grains) and one of the size of a pea (12 grains), which were removed. The cyst, which was now flaccid like the finger of a glove, was excised close to the bladder wall. The patient made an excellent recovery and left the Surgical Home on Nov. 10th untroubled by any urinary symptoms and has remained well ever since. The tumour was found to be a thin-walled cyst covered on both surfaces by transitional epithelium, such as is found in the bladder and ureters. It did not contain any ureteral orifice. It is evident that the calculi from the kidney passed down till they got impacted in that portion of the ureter which passes obliquely through the bladder wall and, impelled onwards by the accumulation of urine behind, bulged the ureteral wall into the bladder, thus forming a pendulous cystic tumour which acted as a ball-valve and prevented the free flow of urine from that viscus.

CASE 6. *Calculus impacted in the left ureter at the vesical orifice; removal by suprapubic cystotomy; cure.*—A man, aged 43 years, consulted me on May 17th, 1900, on his return from India. A year previously he suffered from severe left renal colic with hæmaturia and constant desire to pass urine. He was seen by two well-known surgeons in Bombay who diagnosed renal calculus. In August, 1899, the renal symptoms had disappeared and since then there had been almost constant pain in the perineum and along the penis, particularly marked behind the glans after micturition. There was great frequency of micturition, half-hourly by day and three or four times at night. The urine was acid and contained much pus and urate crystals. The patient was sounded but no stone was discovered. The introduction and manipulation of the sound caused much pain at the neck of the bladder. Cystoscopy was performed on May 23rd and revealed a normal right ureteral opening, but in the position of the left opening a smooth tumour of the size of the nipple of a woman's breast, with a dimple in its centre, at the bottom of which was seen a small brown speck. This was diagnosed to be a prolapse of the ureter which contained a stone. On May 26th I opened the bladder suprapubically and on introducing my finger felt the prolapsed ureter with stone inclosed therein as diagnosed by the cystoscope. By the aid of the finger of an assistant in the rectum the ureter was raised close to the wound, when it was transfixed by a sharp hook and incised over the stone, which was thus set free in the bladder and extracted by forceps. The patient made an uninterrupted recovery and on June 28th left the Surgical Home quite well and free from urinary symptoms. He has since married and has remained free from urinary troubles.

CASE 7. *Calculus impacted in the lower end of the right ureter and projecting into the bladder; diagnosed by the cystoscope; removed by lithotrite.*—A man, aged 53 years, had attended off and on as a patient at St. Peter's Hospital for 13 years for stricture of the urethra and symptoms of stone in the left kidney which had been explored with negative results. For several months in 1898 he suffered from symptoms of stone in the right kidney—viz., pain, hæmaturia, and periodical swelling in the corresponding loin, the subsidence of which was followed by a profuse discharge of pus in the urine. In October he began to complain of symptoms of stone in the bladder—viz., constant desire to micturate with pain at the end of the penis. Cystoscopic examination on Nov. 9th revealed a narrow, rough, pencil-shaped stone projecting into the bladder from the right ureteral opening, which appeared to be three-quarters of an inch in length. My colleague, Mr. Reginald Harrison, and others had an excellent view of the stone.

I at once introduced a lithotrite and after three or four unsuccessful attempts eventually caught the stone between the blades, pulled it out of the ureteral orifice, crushed it, and removed the débris (which consisted of urates and weighed 12 grains) by the aspirator. On recovery I again made a cystoscopic examination when both ureteral openings were seen to be patent. This is, as far as I can ascertain, the first occasion on which this method of removing a stone projecting from the ureter into the bladder has been employed.

I will briefly refer to three other instances of stone impacted in the ureter which have been operated on by me, all of them during my Indian experience. In these cases the stone was impacted at the ureteral orifice and projected into the bladder, and was felt by the sound. One of them occurred in a female and two in males. In each instance an operation was undertaken under the impression that I had to deal with an ordinary case of stone in the bladder. The stone was dislodged from its position by introducing the finger through the ordinary perineal lithotomy wound in the males and through the dilated urethra in the female, the orifice of the ureter was scraped with the finger nail, and the stone being forced downwards by a hand placed on the groin was then removed by lithotomy forceps.

I have no personal experience of intraperitoneal removal of ureteral calculus. Mr. Arbuthnot Lane has placed on record a successful case, but other cases are recorded in which the operation was followed by disastrous results. Considering the grave danger of urine leaking through the ureteral wound into the peritoneum, no matter how carefully the edges of the incision in the ureter are brought together by sutures, I hold that, even when the abdomen is opened for the purpose of effecting a diagnosis, if a stone be located in the ureter, the abdomen should be closed and the calculus removed at a subsequent date extraperitoneally. I was pleasingly surprised at the comparative ease with which in Case 4 the stone impacted in the ureter close to the bladder was reached and removed extraperitoneally by the groin incision. Mr. Betham Robinson, who was, I believe, the first to perform this operation, has placed two successful cases on record. I should in any future case of the kind adopt this route rather than the vaginal, which, apart from other drawbacks, is liable to be followed by a permanent urinary fistula. It is neither necessary nor advisable to close the ureteral wound by sutures when the stone is removed by an extraperitoneal operation.

It will have been observed from the details of the foregoing cases that a definite diagnosis of stone in the ureter was arrived at only in those instances in which the calculus was lodged at or near the vesicle end of the canal. Indeed, in the first two cases in which the calculi were impacted in the upper half of the ureter the exploratory operations were undertaken under the impression that the calculi were situated in the kidney itself or its pelvis. But the difficulty of diagnosing stone in the ureter is still further enhanced by the fact that there are other conditions which give rise to obstruction of the canal the symptoms of which approach very closely to, if they do not actually simulate, those of calculus. The most common of the conditions are stricture, stenosis, or kinking of the ureter; valvular obstruction, caused by a spur of mucous membrane or by an oblique junction of the ureter with renal pelvis; compression of the ureter from without by fibrous bands or by an abnormal branch of one of the renal vessels; a twist of the ureter on its axis, as a rule caused by moveable kidney,—all of which conditions, though they may possibly be suspected to exist, cannot be definitely diagnosed without having recourse to surgical operation. An example is afforded in one of the three cases alluded to at the beginning of this lecture, the details of which are as follows.

CASE 8. *Hydronephrosis; moveable kidney; kinking and stricture of the ureter; dilatation of the stricture and nephrorrhaphy; cure.*—A woman, aged 31 years, had suffered for 18 months from pain in the left lumbar region, which commenced behind and extended round to the front below the umbilical region but never into the groin or the labium. She had three attacks during pregnancy in August, 1901; since then she had had them as frequently as four times a week. The attacks were marked by fearful agony, accompanied by vomiting, cold sweats, severe hæmaturia, and great frequency of micturition. The left kidney was very moveable and a fulness was felt in the left loin. Cystoscopy was performed on Sept. 14th, 1902, and showed the left ureteral opening to be enlarged and irregular. On the 19th I explored the left kidney by the usual oblique lumbar incision. The kidney was easily withdrawn on to the loin; it was hydronephrotic, the pelvis being enormously distended and fully half the size of a normal kidney. An incision through the convex border of the kidney and the introduction of the finger into the pelvis was followed by the escape of a large quantity of urine. No stone was present. I then attempted to pass a catheter through the ureter but it was arrested just below the pelvis of the kidney. Exploration by the finger external to the ureter discovered a kink in the ureter at this point, and also a stricture due to inflammatory adhesions of the peri-ureteral connective tissues. The latter were stripped off the ureter at the strictured point and then a succession of bougies up to No. 9 of the English scale were passed through the stricture. Nephrorrhaphy was then performed, the kidney being fixed high up so as to put the ureter on the stretch. The wound was healed and the patient was discharged on Oct. 18th. On Jan. 12th, 1903, the patient was in excellent health, untroubled by any urinary symptoms.

If the stricture or stenosis, whether congenital or acquired, be inherent in the ureter itself and not caused by some constriction from without, mere dilatation will not as a rule suffice for a permanent cure. A fine bougie should be passed through the stricture, either by way of an incision in the convex border of the kidney extending into the renal pelvis or of an opening made directly in the pelvis itself. A longitudinal incision is then made through the wall of the ureter over the stricture and extending slightly beyond it on either side. A fine silk suture is now passed through the ureteral wall at the extreme ends of this incision, which when brought together convert the longitudinal into a transverse chink. The edges of this chink are carefully united by sutures, passed through the fibrous and muscular coats only, after the method of Lembert, avoiding the mucous lining of the canal. In this way the stricture is obliterated. The bougie is then withdrawn. A kink or twist of the ureter should be relieved, and nephrorrhaphy performed, the kidney being fixed high up so as to put the ureter on the stretch. A valvular formation of the mucous membrane obstructing the flow of urine is generally found at the junction of the ureter and renal pelvis and is, as a rule, associated with moveable kidney. It should be incised longitudinally by a narrow-bladed knife or nipped by scissors introduced through an incision in the pelvis. In some cases a plastic operation is required for the cure of this malformation.

NEW WORKHOUSE AT WOLVERHAMPTON.—This large block of buildings, which has been under construction for some time, is nearly finished and will be formally opened on Sept. 24th. The ground, 50½ acres, cost £11,128, and the contract for the buildings was £156,879. The total cost, including road-making, furnishing, &c., will amount to at least £200,000. Six and a half acres have been covered with buildings which will accommodate 1246 inmates, 20 nurses, and 60 other officers. The total number of buildings is 31, of which the chief are the administrative section, comprising eight blocks, which are connected on the ground floor by inclosed corridors, the roofs providing means of communication between the upper wards. In the centre of this collection of buildings is the residence of the master, the assistant master, the clerks, the chaplain, and other members of the staff. There is a dining hall capable of seating 800 persons; adjoining are the the kitchens, the sculleries, and stores, while abutting on the central block are three-storey buildings for each sex, a nursery, and quarters for 16 married couples. At the rear of this block is the infirmary, with space reserved for extensions, and there are provided quarters for the medical officer and nurses. Three blocks will be utilised for males and the same number for females, and contiguous are the dispensary, operating and consulting rooms, and a lying-in ward. Still further to the rear is another block designed for the use of the imbeciles, separate quarters being provided for the epileptic patients. Two hospitals for special diseases and an isolation hospital are placed still further to the rear of the main buildings. A nurses' home has been erected to accommodate, if necessary, 40 inmates. The whole of the buildings will be lighted by electricity which will be supplied from a power station situated near the centre of the grounds. In the infirmary pavilion the floors are fireproof, being composed of concrete and steel joists supported on steel girders.

Remarks
ON
FOUR CASES OF EMPYEMA OF THE GALL-BLADDER.

Delivered before the Chelsea Clinical Society

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MR. PRESIDENT AND GENTLEMEN,—The occurrence of suppuration in the gall-bladder is, I think, sufficiently uncommon to make the record of four cases in which this condition existed interesting to the society. It is a peculiar fact, too, that these four cases occurred in my practice within a period of four months and that previously I had not seen a single case among about 25 cases of operation on the gall-bladder.

Empyema of the gall-bladder may be due to simple suppurative catarrh or it may be a part of a suppurative cholangitis, or again it may be caused by acute phlegmonous cholecystitis. The first three of my cases are examples of simple suppurative catarrh and the last is one of acute phlegmonous cholecystitis. This latter condition is a very rare one, only a few cases having been recorded; it is also a very serious one and in its behaviour resembles acute appendicitis with gangrene of the appendix. The symptoms to which it gives rise are usually the following: a high temperature of 103° F. or over, a rapid and feeble pulse, quick and shallow breathing, intense depression, an anxious expression, and persistent vomiting. Occasionally, as in my case, severe diarrhœa is also present. Locally the abdomen will be found to be distended and tympanitic; there will be acute tenderness in the region of the gall-bladder, extending perhaps to the right iliac region, and the abdominal walls will not move on respiration; in fact, the condition will be one of acute peritonitis. In some fortunate cases the pus may become localised precisely in the same way as it does in appendicitis; otherwise the prognosis is most grave, even when the operation is undertaken before any purulent collection has taken place within the peritoneal cavity.

Suppurative catarrh of the gall-bladder, which is usually due to gall-stones, but may be found without any gall stones, being due to cicatricial contraction of the cystic duct, is very much less serious than the other variety and the constitutional symptoms at first are so slight that it is extremely difficult, if possible, to diagnose between a distended gall-bladder containg pus and one containing only mucus. The only point which will aid us in the early stages will be the acute tenderness over the tumour and the rigidity of the abdominal walls. Usually the temperature is slightly elevated, but is often normal. In some cases, however, there are rigors and a higher temperature. The pain is usually severe but even this is sometimes slight. If no operation is performed the gall-bladder may perforate after the formation of adhesions and an abscess may come to the surface between the layers of the abdominal wall from which, on being opened, gall-stones will be discharged. Perhaps the most common place for such an abscess to point is at the umbilicus and a considerable number of cases of umbilical fistula through which gall-stones are passed have been recorded. In other cases the gall bladder may form adhesions between the colon and the small intestine and the gall-stones and pus may be discharged into the intestinal canal. In other cases again no inflammation is excited outside the gall-bladder, but the tumour remains and the patient becomes emaciated. The tumour in empyema usually follows the direction taken by simple distension of the gall bladder—that is to say, downwards and inwards in a line drawn from the junction of the ninth rib on the right side and its cartilage and crossing the linea alba a little below the umbilicus. In other cases, owing to peritoneal adhesions, the enlargement of the tumour may be confined to the lumbar and iliac regions. This was noticed in two of my cases.

The main point in diagnosing a distended gall-bladder is that it possesses a rounded edge below, but at its upper limit it cannot be defined from the liver, although a definite sulcus can usually be felt at this point. In most cases the tumour is very hard and owing to its tenseness no fluctuation can be obtained. From the bacteriological point of view empyema of the gall-bladder may be due to the presence of bacterium coli commune, the streptococcus, or the typhoid bacillus. It is not known how these micro-organisms find their way into the gall-bladder, as in health the bile-ducts are free from any micro-organisms. The following are the notes of my cases.

CASE 1.—The patient was a female, aged 61 years, whom I was asked to see by Dr. W. H. Walter of Brentford in March, 1901. She had had good health, with the exception of an attack of supposed hepatic colic eight years before, after which she passed what was called a gall-stone. It was of about the size of a nux vomica bean but looked more like a fæcal concretion. At the beginning of March she had a severe attack of pain in the right hypochondriac region, accompanied by vomiting, but not by jaundice; there was slight diarrhœa. During the previous week a tumour had been felt near the umbilicus which was scarcely at all painful to the touch. The abdomen moved well and the tumour, which was of about the size of a closed fist, moved with respiration; it extended downwards below the level of the umbilicus and was not absolutely dull on percussion. There was no sign of any jaundice. The diagnosis made was distension of the gall-bladder by a stone probably in the cystic duct. On March 30th the abdomen was opened in the right semilunar line and the omentum was found to be adherent to the gall-bladder and so had to be divided between the ligatures. The gall-bladder itself was extremely thickened and on opening it about two ounces of pus escaped. It was flushed out and two small stones were found loose in the gall-bladder, while a third was impacted in the cystic duct. This was removed and the gall-bladder was drained. The patient made an uneventful recovery.

CASE 2.—The patient was a man, aged 61 years, whom I was asked to see by Mr. J. Esmonde of Walthamstow on March 16th, 1901. He had good health till about six years before, when he had several attacks of pain in the region of the liver, one of these attacks being followed by jaundice. Since then he had frequent attacks of pain but no jaundice. About three weeks before I saw him he had more severe pain in the right hypochondriac region, accompanied by vomiting and tympanites and a lump was then discovered for the first time. The vomiting ceased and the abdominal distension subsided. The temperature had not been above 100° F. and was then 99°. On examination the abdomen moved well on respiration; there was a tumour of the size of a closed fist continuous with the liver and extending to the level of the umbilicus; it moved with respiration and was only slightly tender to the touch. The diagnosis in this case was also distension of the gall-bladder by blocking of the cystic duct. An operation was performed on March 18th, an incision being made in the outer part of the right rectus muscle. On opening the peritoneum dense adhesions were found, the liver being connected to the abdominal wall and its free edge fixed in a mass of cicatricial tissue. Neither the gall-bladder nor the pylorus could be seen or felt, but after separating dense adhesions the transverse colon came into view. It was therefore decided to carry the incision through the cicatrised edge of the liver and after dividing some cartilaginous tissue the gall-bladder was opened, about five ounces of thick muco-pus being evacuated, but no gall-stone was found. It was impossible to explore the bile ducts owing to the adhesions. The cavity of the gall bladder was irrigated, swabbed out, and drained in the usual way. The patient made a perfect recovery, the wound being healed in three weeks. He seemed in good health for a time but I was disappointed to hear that he had another attack of hepatic colic in May. This was not, however, surprising, as owing to the dense adhesion it was not found advisable to search for a stone impacted in the common duct, hoping that the drainage of the empyema of his gall-bladder would give relief. This attack subsided under medical treatment and he is, I believe, now quite well.

CASE 3.—The patient was a married woman, aged 28 years, whom I saw on June 13th, 1901, at the Blackheath Cottage Hospital, with Mr. Finch White. She gave the following history. She had previously enjoyed good health, but on June 11th she had severe pain in the abdomen which was most marked in the right iliac region. There was especial tenderness at McBurney's point and the abdomen

was slightly distended. The tongue was furred and brown; there was nausea but no vomiting. The temperature was 99° F. and the pulse was 100. There was no sign of jaundice. On the 12th the abdomen was distended and very tender in the right iliac region and a definite swelling could be felt in this region. There were dulness and tenderness over the swelling; the temperature was 100°. On the 13th the patient was not so well; there were more pain and tenderness, the patient's expression was anxious, and the pyriform swelling was much larger. The diagnosis was that of an abscess in connexion with the appendix. When I saw her she was evidently suffering from peritonitis; I noticed that the swelling in the iliac fossa had a rounded edge at its lower part and that its upper part became merged with the liver dulness. There was also a slight icteric tinge in the conjunctivæ, and although there was no history of any previous attack of jaundice or of gall-stone colic I came to the conclusion that the case was one of distended gall-bladder, probably due to the presence of pus. I operated on the same evening, making an incision in the right linea semilunaris, and found a distended gall-bladder with greatly thickened walls and with some recent adhesions between the gall-bladder and anterior abdominal wall. The gall-bladder was opened and about four ounces of pus were evacuated, together with 32 stones which were situated in the gall-bladder and in the cystic duct. A drainage-tube was sewn into the gall-bladder. There was a free discharge of bile, but the wound did not require dressing until the sixth day. The tube was shortened on the eighth day and removed three days later. The sinus quickly healed up, though during the first few months after the operation she had an occasional discharge of bile from it. The patient is now quite well.

CASE 4.—The patient was a woman, aged 63 years, whom I was asked to see by Dr. A. R. G. Pocock of Acton on July 11th, 1901. She had previously enjoyed good health with the exception of several so-called bilious attacks. Some of these were severe and caused her to keep in bed during some weeks, the last one being one year previously; on one occasion she was jaundiced. The present illness commenced on July 6th with severe pain at the umbilicus. Since that date the pain had increased and was felt all over the abdomen. The abdomen was distended and the patient had troublesome diarrhœa. A tumour which was acutely tender was noticed in the right ilio lumbar region two days previously. The temperature was 103° F. and the pulse was 120 and weak. I was asked to see the case. On examination the abdomen was distended and did not move on respiration. There was a tumour of the size of a large pear connected with the liver above and extending to the iliac fossa below; a rounded edge could be felt at the bottom of the tumour. The diagnosis in this case was an empyema of the gall-bladder probably dependent on gall-stones and an immediate operation was recommended. This was done on the following day, an incision being made over the tumour. The peritoneum was found to be adherent to the gall-bladder and the coils of small intestine were covered with yellow lymph. The gall bladder itself was very thick, its wall in one place being very acutely inflamed and almost gangrenous. It was opened and four ounces of thick muco pus escaped. At the bottom of the gall bladder two yellow stones were found, one of which had been impacted in the cystic duct. The gall-bladder was stitched to the peritoneum and drained. The patient stood the operation well, but three hours later diarrhœa commenced and continued about every hour during the night. The patient became collapsed and in spite of injections of strychnine and of saline infusion she died within 24 hours.

The first three cases bear out what I have stated with regard to simple suppurative catarrh of the gall-bladder at the commencement of this paper. In the first case three gall-stones were found and these were all little yellow stones which evidently were of old standing; one of them was tightly impacted in the cystic duct. In Case 2 I believe there was also an impacted stone in the cystic duct, but the density of the adhesions and the age of the patient (over 60 years) made it seem unadvisable to make a prolonged search for the stone. The subsequent history of the case has proved the wisdom of my action, since the stone evidently passed from the cystic into the common duct and two months later the stone probably escaped through the common duct into the duodenum, since he had a definite attack of hepatic colic at that time. In Case 3 the gall-stones, which were 34 in number, were of normal colour and had evidently not existed for a long time.

From the point of view of diagnosis jaundice need never be looked for as a symptom; in fact, its presence would be rather against a diagnosis of a simple empyema of the gall-bladder, since this condition only exists as a definite tumour when the cystic duct is blocked, for should suppuration occur when the cystic duct is patent the pus would spread up the hepatic ducts and the condition known as suppurative cholangitis would be produced, giving rise to an enlargement of the whole liver, accompanied by tenderness and no particular enlargement of the gall-bladder. The constitutional symptoms also are more severe and the condition is one of considerable danger, the only hope lying in immediate cholecystotomy and drainage of the gall-bladder.

Whatever difference of opinion may exist as to the propriety of operations on gall-stones where few symptoms are present there can be no two opinions about the urgent necessity of operating when there is a collection of pus in the gall bladder, but, as I have stated, it is very difficult, if not impossible, to diagnose between a gall bladder containing muco-pus and one containing pus; therefore I consider that the existence of a distended gall-bladder which is tender to the touch, and especially if there are any signs of local peritonitis, is an indication for immediate operation, and this, too, in spite of the fact that though the tumour may disappear through the collection of pus becoming inspissated, since the patient will not regain his health, while the method of cure by ulceration into the intestine is naturally of considerable danger. In comparison we must remember that the operation of cholecystotomy is one of the most successful of abdominal operations and that the risk is extremely slight. Although one of these four patients died her case, as I have already pointed out, was quite distinct and her death was due to the peritonitis present before the operation.

In connexion with these cases it is interesting to note that in several of my cases other than those of empyema jaundice had either been absent or there had been only an indefinite history of it, the main cause of seeking relief having been persistent pain in the region of the liver or symptoms of stomach trouble caused by adhesions between the gall-bladder and the pylorus.

Finally, I should like to refer to three cases which illustrate the extreme difficulty of diagnosing between a tumour connected with the pyloric end of the stomach and a distended gall bladder.

CASE 5.—The patient was a woman, aged 54 years, who was admitted into the Blackheath Cottage Hospital on Jan. 23rd, 1900, on account of an abdominal tumour and vomiting after food. She had a considerable amount of pain, mostly after food, but had never had an attack of jaundice or gall stone colic. The stomach was dilated and extended to about two fingers' breadth below the umbilicus; "splashing" could be detected. A tumour of about the size of a turkey's egg could be felt about the level of the umbilicus; this apparently was continuous with the dilated stomach and was freely moveable. The patient was considerably emaciated. I gave a diagnosis of malignant disease of the pylorus and recommended an exploratory operation with a view to perform either pylorectomy or gastro enterostomy. The patient agreed and the abdomen was opened in the middle line above the umbilicus; the hard swelling was found to be a greatly distended gall bladder to which the pylorus was adherent, producing a constriction. These adhesions were divided and the gall-bladder, which was felt to contain many stones, was stitched in the wound and opened after the peritoneal cavity had been shut off. A quantity of mucus was evacuated together with one large stone of the size of a walnut and 353 small stones. The patient is now in perfect health.

CASE 6.—This case was that of a man, aged 48 years, whom I was asked to see at the same hospital suffering from a moveable tumour in the region of the gall-bladder, accompanied by persistent pain which had existed for a little over two months, but the tumour had only been discovered about 14 days before and was supposed to have diminished in size after manipulation. The patient had never vomited, there was no dilatation of the stomach, and the pain was not increased after food. The tumour moved freely from side to side but not in a vertical direction. It descended, however, with inspiration. It was not quite dull on percussion and apparently was continuous with the liver. The lower end of the tumour was distinctly rounded and reached the level of the umbilicus, the whole tumour being situated to the right of the middle line. The entire absence of any stomach symptoms, together with the position of the tumour, seemed

to make the diagnosis fairly clear—viz., that of distension of the gall-bladder. The abdomen was opened on Dec. 13th, 1901, and the tumour was found to be a carcinoma completely surrounding the pyloric end of the stomach, the gall-bladder being undistended and healthy. Although the tumour was moveable it was not removed as the patient had not given his consent to so extensive an operation.

CASE 7.—This case, in which the diagnosis was equally difficult, was that of a woman, aged 63 years, whom I was asked to see by Dr. W. H. Walter of Brentford, who gave me the following history. She had enjoyed good health until seven years previously, when she had an attack of pain in the right hypochondrium accompanied by vomiting but not followed by jaundice. This attack lasted for about three months, after which she completely recovered and remained in good health until about three weeks before I saw her, when she began again to notice pain in the right hypochondrium. This was of a severe griping nature and necessitated hypodermic injections of morphia. She vomited large quantities but never brought up any blood and she had lost flesh. On examination there was marked tenderness in the right hypochondriac region; the liver was not enlarged but there was a tumour apparently continuous with the liver extending to the level of the umbilicus, which was not absolutely dull on percussion, which had a rounded edge below, and which was situated entirely to the right of the middle line and descended with inspiration. The lower edge of the stomach did not extend as low as the umbilicus but there was marked "splashing." There was no sign of jaundice, the tongue was furred, but the motions were of a normal colour. In this case the diagnosis of distended gall-bladder, produced by gall-stones, and probably causing some constriction of the pylorus from adhesions, was made. The abdomen was accordingly opened over the right linea semilunaris and the tumour was found to be adherent to the abdominal wall. As it was considered to be an adherent gall-bladder an incision was carried through it, when a smooth-lined cavity was discovered. This, however, contained no gall-stones but some of the contents of the stomach escaped. It was then found that the tumour consisted of a malignant growth involving the gall-bladder, the pylorus, and the transverse colon. The incision into the growth was then united with sutures and a gastro-jejunostomy was performed through an incision in the middle line.

These three cases (Nos. 5, 6, and 7) will, I think, make it clear that a positive diagnosis should never be given in cases of a tumour situated in the right hypochondrium and they also illustrate the point on which I have laid stress on other occasions, that an exploratory operation should be advised in any abdominal tumour.

THE SURGERY OF GASTRIC ULCER.[1]

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ULCER of the stomach is so common and its complications are so serious that almost every member of this society must have met with cases which may have greatly taxed his ingenuity and exhausted his therapeutical resources. I therefore think it may prove a subject of interest to all if I venture to draw attention to the vast strides made in the surgery of this affection during recent years. In doing so it is my intention to avoid any detailed references to the very extensive literature of this subject, which would probably prove more wearisome than instructive. I shall limit my remarks to such cases as have come under my own notice and submit for your consideration a brief record of my own operative experience. With the surgery of perforating ulcer it is unnecessary to occupy your time and I will simply place on record my work in connexion with this complication.

I have operated for perforation 12 times with eight successes. Nine operations were undertaken during the acute stage; of these the first three were done before the necessity for early interference had come to be generally recognised and before I myself had thoroughly mastered the finer points of the operation which contribute so much to success. These cases were practically hopeless from the first and all three patients died. Of the remaining seven cases six recovered and, I believe, are still alive. The fatal case was moribund at the time of arrival in hospital; at first we decided not to operate, but on reflection and consultation we altered our minds and concluded that as she had been sent into hospital for operation and as she was absolutely hopeless without interference it was our duty to give her the only chance of life still left. The abdomen was opened under cocaine; the ulcer was found immediately under the incision and sutured without difficulty; the operation involved little or no increase of existing shock but the patient died about two hours later. Two cases having survived the immediate risk of general peritonitis were operated on in the second week for the relief of perigastric abscess and both of the patients recovered. If, therefore, we omit the first three cases which scarcely offer a fair criterion of operative mortality my personal experience would show a series of nine consecutive cases with eight recoveries.

Physicians and surgeons are now happily agreed as to the duty of the surgeon when perforation has occurred. By common consent he is called upon to operate at the earliest possible moment. When we come, however, to consider the question of operative interference independent of perforation we are on more debateable ground and it is especially to this aspect of the subject that I wish to draw your attention. I have operated on 18 patients for the relief of symptoms which careful clinical investigation attributed to ulceration. In all instances the symptoms had continued with varying periods of comparative relaxation for several years. I shall now very briefly indicate the more prominent symptoms in each case, the condition actually found on opening the abdomen, and the nature of the operation.

In order that this hurried record might prove more interesting and intelligible I have prepared a series of slides which, while crude and diagrammatic, are at least a faithful indication of the diseased condition. Considering the comparatively small number of operations it is somewhat surprising that I should have met with no less than six examples of hour-glass contraction. I shall therefore deal with these six cases first.

CASE 1. *Hour-glass stomach; gastro-gastrostomy; cure.*—The patient was a single woman, aged 29 years, who had suffered from symptoms of gastric ulcer for 14 years. She had had several attacks of hæmatemesis. In spite of treatment she steadily got worse, the pain became almost continuous, vomiting occurred promptly after all kinds of food, she lost weight steadily, and finally was reduced to the condition of a chronic invalid. In November, 1900, she put herself under the care of Dr. W. Calwell and Dr. A. Fullerton who recommended an exploratory incision. She willingly consented and was removed to a private hospital. No attempt was made to pass a stomach-tube as she had had a sharp attack of hæmatemesis on Nov. 1st, four weeks before operation. On the 27th, assisted by Dr. Fullerton and in the presence of Dr. Calwell, I opened the abdomen. Four long thin bands, evidently the result of old adhesions, stretched from the anterior abdominal wall to the upper border of the stomach; when these had been divided the stomach was without difficulty drawn into the wound and an hour-glass contraction was at once demonstrated. The constricted portion connecting the two pouches was formed of dense cicatricial tissue evidently the result of contraction following an old ulcer. We at once decided to form an anastomosis between the two pouches and Wölfler's gastro-gastrostomy was carried out. An incision two and a half inches long was made into each pouch and the edges were united by a double row of continuous sutures. So tight was the constriction that my index finger introduced into the stomach through the incision in its wall could not be passed through the narrow opening. No attempt was made to interfere with the diseased area. The operation lasted for one hour. Recovery was rapid and complete. She was fed by the mouth from the third day. In two weeks she could eat ordinary diet without any inconvenience. She returned home three weeks after the operation. Two months later she called to see me and I scarcely knew her so marked was the improvement. She said she never remembered feeling so well. She had just eaten a dinner of roast beef, turnips, and potatoes without discomfort of any kind. She has since married and I am glad to say was still in excellent health two years and two months after the operation.

CASE 2. *Hour-glass stomach; death from shock.*—The patient, a single woman, aged 34 years, had suffered from symptoms of gastric ulcer for about 15 years. She had been

[1] A paper read before the Ulster Medical Society on Feb. 5th, 1903.

several times in hospital and had had repeated attacks of hæmatemesis. Early in February, 1901, she had a violent attack of epigastric pain and for six weeks the pain had persisted without intermission, vomiting became almost continuous, and the vomited matter contained blood in varying quantity. She was seen by Sir William Whitla in consultation with Dr. H. A. Logan of Ballyclare and as a last resource was sent into my ward for operation. She was admitted on March 30th, 1901. She was then very weak and wasted, having a subnormal temperature and a feeble, irregular, intermittent pulse. Vomiting was almost constant and she fainted in bed on the day following admission. On examination an intensely tender area was detected below the seventh and eighth costal cartilages on the left side and this area was distinctly dull. She was put on nutrient enemata and this treatment continued for five days in the hope that her general condition would improve, but the response was very slight and it was evident that unless something was done she must soon die. Accordingly, on April 4th, assisted by my colleague, Mr. T. S. Kirk, I opened the abdomen by an incision through the middle of the left rectus, directly over the tender spot. This incision opened into an indurated area due to inflammatory exudation. The central portion of this area broke down rapidly with the pressure of the finger and the stomach was suddenly opened. The ulcerative process extended into the liver and the stomach was separated from that organ with difficulty. It could then be drawn partially into the wound when it was found to be of the hour-glass form with active ulceration going on at the seat of constriction. The ulcerated area was enfolded as rapidly as possible and the pouches of the stomach joined together by Wölfler's method. The operation, which lasted one hour, was very badly borne and she died from shock two hours afterwards.

I think that it was a mistake in this case to make the incision directly over the tender area. It would have been better to cut down in the middle line so as to be free of the adhesions in the first instance when they might have been attacked from their border or possibly left untouched.

CASE 3. *Hour-glass stomach; gastro gastrostomy; cure.*—The patient, a single woman, aged 41 years, sister of a medical man, had suffered in her stomach for 26 years. In May, 1901, she went to Belfast and remained for six weeks under the care of Sir William Whitla in a nursing home. I saw her at that time and thought the case might possibly be one of hour-glass contraction, but she improved so much under rest and diet that operation was not considered to be justifiable. She returned to the country but very soon after she was as bad as ever. In March, 1902, she returned to Belfast and decided to have an operation performed. On March 18th, in the presence of Sir William Whitla, Dr. J. S. Darling, and the patient's brother, the abdomen was opened and a well-marked hour-glass stomach was without difficulty drawn into the wound. The pylorus was inspected and found to be healthy. Gastro-gastrostomy was performed. When the stomach was opened it was found that the opening between the two pouches would scarcely admit the tip of the little finger and in view of this fact her apparent recovery in the summer of 1901 is somewhat remarkable. She recovered rapidly after operation and left the home a month later feeling very well and able to take ordinary diet, including potatoes, with impunity. I am glad to say that she continues quite well at the present time (11 months after the operation).

CASE 4. *Hour-glass stomach; gastro-jejunostomy; cure.*—The patient, a man, aged 32 years, had suffered from indigestion for years. In 1899 Sir William Whitla had diagnosed dilatation and had recommended him to wash out his stomach, from which he had derived great relief; indeed, he was quite an expert in the use of the stomach-tube. He, however, steadily lost ground, had several fainting fits, and in the middle of April, 1902, whilst at Castlerock for the benefit of his health, had a severe attack of hæmatemesis. Dr. A. Heron of Rathfriland brought him to Belfast and I saw him at a private home with Sir William Whitla on April 24th. The stomach easily held five pints of fluid and reached almost to the pelvic brim. Free hydrochloric acid was present in excess. On the 25th, in the presence of Sir William Whitla and Dr. Heron of Rathfriland and Dr. Heron of Bristol, abdominal section was performed. An hour-glass stomach with a greatly dilated upper pouch and a small but dilated lower pouch was found. The pylorus could not be brought into the wound owing to dense adhesions. On account of the great size of the upper pouch and the presence of pyloric adhesions it was decided to make an artificial communication between the upper pouch and the jejunum. Posterior gastro-enterostomy was therefore performed. The operation lasted one hour. The patient rallied rapidly and made excellent progress for the first five days. On the sixth day he had a severe attack of vomiting; on the seventh day he vomited several times and his eyes became sunken and his pulse rapid and weak. We considered the question of reopening the abdomen but decided first to give lavage a trial. He therefore once again had resort to the stomach tube and he was encouraged to get out of bed and to sit in an armchair so as to secure dependency of the anastomotic opening. The result was most satisfactory—he was never again sick. Further progress was rapid and uneventful. He left the home on May 22nd, one month after operation, feeling quite strong and having gained no less than one stone in weight. I am glad to say that he continues to enjoy perfect health and at Christmas he sent me several snipe, victims of his vigour and marksmanship.

CASE 5. *Hour-glass stomach; gastro gastrostomy; cure.*—A single woman, aged 29 years, was sent to the Royal Victoria Hospital by Dr. D. P. Gaussen of Dunmurry for treatment by Dr. Calwell. She was admitted on Sept. 2nd, 1902, her history being that she had been a martyr to indigestion for over five years, characterised by severe pain about half an hour after food, occasional attacks of vomiting, and characteristic coffee-ground vomit on several occasions. Examination revealed a very tender and resistent area below the left costal margin. She was considerably wasted, her weight being only 7 stones 10 pounds. Drugs, rigid diet, rest in bed, and rectal feeding having failed to give the slightest permanent relief, Dr. Calwell suggested operation, to which she at once consented. On Sept 24th I opened the abdomen in the middle line, having learnt by experience that it is not good practice to cut down on an actually tender area which probably corresponds to an ulcer surrounded by excess of inflammatory exudation and adherent to the abdominal wall; such a condition existed in this case. Without much difficulty the adhesions were separated by the index finger and the stomach was drawn into the wound. It was at once seen to be hour-glass in character, the ulcer being situated a little below the middle, close to the lesser curvature. The ulceration was evidently active and after a hurried consultation we decided that the best procedure would be to perform a gastro-gastrostomy and then to infold the ulcerated area; this was accordingly done. Recovery was uneventful. In a week the patient could take food by the mouth with perfect comfort and she left hospital one month after operation feeling very well. She is now in excellent health and weighs 10 stones, having thus gained 2¼ stones as a result of the operation.

CASE 6. *Hour-glass stomach; gastro-gastrostomy; cure.*—The patient, a single woman, aged 38 years, had suffered from "indigestion" for over 16 years. For the past three years she had been the victim of severe pain in the epigastrium coming on from half to one hour after food and radiating into the back and sometimes into the left breast. This pain was partially relieved by vomiting which for the last year occurred about once daily, generally after dinner. The pain was diminished by rest in bed but was not appreciably affected by posture. On one occasion the vomit had been brown in colour. She was admitted to the Royal Victoria Hospital under Professor J. A. Lindsay on Sept. 6th, 1902, when she was greatly wasted, her weight being only 5 stones 6 pounds. For one month she was submitted to the most rigid treatment, including prolonged rectal feeding, but without benefit. On Oct. 1st I was asked by Professor Lindsay to see her with a view to surgical interference. The stomach-tube was passed after a test breakfast and the stomach contents were found to contain excess of free hydrochloric acid. The following note was taken at the time by Dr. Hugh M. McCrea, resident physician. "On inflation with air the stomach reaches to half-way between the umbilicus and the pubes and on pressure the air could be felt passing across the abdomen as if from one cavity to another; *four and a half pints* of fluid were then put into the stomach but *only two pints* came out again." A diagnosis of probable hour-glass stomach was made and operation was recommended. On Oct. 5th the abdomen was opened by the usual median incision and a well-marked hour-glass contraction was displayed. The upper pouch was entirely concealed behind the ribs, its wall was greatly hypertrophied, bound down by numerous adhesions, with evidence of recent

perigastritis. The lower pouch was much larger than the upper and some adhesions were found binding down the pylorus; these were easily separated. The centre of the constriction showed signs of recent inflammation and was adherent to the left lobe of the liver; these adhesions being extensive were left untouched. With considerable difficulty the upper pouch was drawn down sufficiently to permit of a gastro-gastrostomy being carried out. When the stomach was opened it was found impossible to pass the index finger through the narrow opening between the upper and lower pouches. Recovery was uninterrupted. The patient had water by the mouth in small quantities from the first, on the third day she had peptonised milk, and on the fifth day her diet consisted of eggs, jellies, soups, tea, and a little toast. Ten days after operation she could take fish and chicken without the slightest pain. She was discharged from hospital on Nov. 8th, five weeks after the operation, in excellent health, at which time she had gained seven pounds in weight. On Feb. 1st, 1903, she reported herself to be in good health, free from pain of any kind, and able to eat all sorts of food. Her weight was 7 stones 13 pounds, a gain of 2 stones 7 pounds.[2]

These six cases afford, I think, very satisfactory evidence of the value of surgery. The condition being a mechanical one it is obviously hopeless to expect relief from medicinal or dietetic treatment. Such cases are essentially surgical. Unfortunately, it is not possible to diagnose hour-glass contraction in more than a small percentage of cases until the abdomen has been opened, the most trustworthy sign being that observed in Case 6—i.e., the introduction of a quantity of fluid into the stomach, only a portion of which can be withdrawn through the tube. These cases illustrate two methods of dealing with hour-glass stomach: (1) gastro-gastrostomy, which in my experience has proved safe and efficient (the disadvantage of this operation is that it leaves a somewhat abnormal, double-barrelled stomach, but at the same time it secures rest for the diseased area which probably cicatrises rapidly); and (2) gastro-jejunostomy, which is only applicable to cases in which the lower pouch is very small and the pylorus is involved in adhesions. It is, of course, a much more serious operation than gastro-gastrostomy. It is essential in all cases of operation on the stomach that the pylorus should be seen and carefully examined. Two cases have been published in which the jejunum has been joined to the lower pouch, the upper having been hidden, as in Case 6, behind the ribs. The two other methods of treatment which obviously suggest themselves are: (1) gastro-plasty, which restores the stomach as nearly as possible to its normal shape but has the disadvantages that (*a*) it does not give subsequent rest to the diseased area and (*b*) that you cut into diseased tissue and insert sutures in cicatricial tissue; and (2) excision or partial gastrectomy, which, however, is a very severe operation, only justifiable in non-malignant disease in very exceptional circumstances.

The next series consists of six cases of dilated stomach due to pyloric obstruction, non-malignant in character. I regret to say that the mortality is very high, three out of the six patients having died. This, however, does not fairly represent the actual surgical risk, one patient having died from ether pneumonia, another was dying from toxic poisoning when operation was undertaken, while the third death must fairly be attributed to the operation itself.

CASE 7. *Dilated stomach; gastro jejunostomy; death from ether pneumonia.*—The patient was a man, aged 53 years, who had enjoyed good health till he was 50 years old. He then suddenly vomited two or three mouthfuls of dark blood. Since then he complained of constant weakness and occasional attacks of vomiting but no actual pain. For the past six months, however, he had severe persistent pain in his stomach which was greatly increased a short time after eating food. He vomited at irregular intervals and on a few occasions the vomit contained a small quantity of blood. He was admitted to hospital under the care of Dr. Calwell on March 23rd, 1901. On examination the stomach was found to be enormously dilated; when distended with gas it reached to half-way between the umbilicus and the pubes, and when a pint of water had been drunk the patient being in the erect position, dulness extended almost to the pelvic brim. Examination of the contents one hour after a test breakfast showed excess of free hydrochloric acid. The case was regarded as one of pyloric stenosis due to cicatricial contraction. He consented to operation being performed. On April 18th ether was administered and the abdomen was opened. The stomach was found to be greatly dilated but freely moveable except at the pylorus, where it was tightly bound down by adhesions. Von Hacker's posterior gastro-jejunostomy was performed. The operation lasted 50 minutes, it was well borne, and there was little or no shock. Unfortunately, the patient developed ether pneumonia within 12 hours from which he died on the fourth day. At the post-mortem examination the gastro-jejunal junction was quite firm without the slightest trace of leakage or peritonitis. On opening the stomach, which was of about three or four times the normal size, a large ulcer of about the size of a crown-piece was found on the posterior surface close to the pylorus. It had perforated all the coats of the organ and its floor was formed by the pancreas. The pylorus freely admitted the index finger but this was after the viscus had been removed and adhesions had been separated. The death of this patient was very unfortunate. The post-mortem evidence, I think, fully justified the surgical procedure which had been undertaken. About three months before operating on this patient we had a very similar case. The patient stoutly refused operation. Early one morning while still in hospital perforation occurred and he died in about two hours. Post-mortem examination revealed an ulcer close to the pylorus with perforation on the anterior surface and cicatricial narrowing of the orifice.

CASE 8. *Dilated stomach; gastro jejunostomy; death.*—The patient, a man, aged 53 years, who was under the care of Dr. D. Johnston of Holywood, had suffered from his stomach for years, had had three or four attacks of gastric tetany and for two years had regularly washed out his stomach. On July 10th, 1901, I operated in his own house, assisted by Mr. R. J. Johnston. We found a greatly dilated stomach; the pylorus and duodenum were bound down by adhesions; the first portion of the duodenum was contracted to the size of a lead-pencil. A posterior gastro-jejunostomy was performed. The patient bore the operation very well and rapidly recovered and was able to eat solid food with comfort, and all went well till the fifteenth day when he suddenly became collapsed and vomited freely. The stomach was washed out, but as relief was not obtained I decided to reopen the abdomen. I found that the gastro-jejunal junction for a length of about three inches was imbedded in a mass of inflammatory lymph which had evidently contracted and occluded the canal; there was not the slightest trace of peritonitis beyond this area and the line of suture could not be detected. The line of junction was freed as rapidly as possible and an anastomosis by the aid of Murphy's button was effected between the proximal and distal ends of the jejunum, but the patient gradually sank and died two days later.

CASE 9. *Pyloric stenosis; gastro jejunostomy; recovery.*—The patient was a man, aged 50 years, who had suffered from his stomach for ten years. Under the care of Dr. S. Martin of Newry he had made use of the stomach-tube for six months and at first had greatly benefited, but he again began to fail in health. He consulted Sir William Whitla and gave a thorough trial to diet, drugs, and rest, but only got weaker. He only complained of pain and progressive weakness. He never vomited. Sir William Whitla who had diagnosed dilated stomach and pyloric obstruction asked me to see him with a view to operation. This was agreed to and he went to Belfast and entered a nursing home on June 9th, 1902. He was then weak and wasted, the stomach contents after a test-meal contained excess of free hydrochloric acid, and we regarded the condition as non-malignant. On the 11th operation was undertaken in the presence of Sir William Whitla and Dr. Martin. The stomach was found to be dilated; in the neighbourhood of the pylorus a distinct thickening almost like a tumour and of the size of a large walnut could be felt and seen; this mass and the pylorus were firmly bound down by adhesions. There were several enlarged glands, one of which was removed for pathological examination. We regarded the condition as inflammatory, notwithstanding his age, an opinion which was fully justified by Professor J. Lorrain Smith's report on the gland submitted to him and by subsequent events. Posterior gastro-jejunostomy was performed, special care being taken to make a free opening and to prevent kinking by extending the line of suture well beyond the new opening. The operation occupied one hour; the patient rallied rapidly and his progress to recovery was uneventful. He was fed by the mouth from the fourth day, had solid food on the eighth day, and could eat a chop with relish on the twelfth day.

[2] This patient and the patient in Case 5 were shown at the meeting.

He left the home for Portrush three and a half weeks after operation, having gained one stone in weight. He wrote me at Christmas saying that he was in perfect health and that he had not felt so well for many years.

CASE 10. *Pyloric obstruction, anterior gastro-jejunostomy; recovery.*—The patient, a man, aged 58 years, had suffered from his stomach for some time. For the past six months he had more or less constant pain, he vomited enormous quantities of foul-smelling acid material at least once daily. His stomach held five pints without distress; there was no free hydrochloric acid. He had a double aortic murmur and a very irritable temper and it was impossible to make any satisfactory use of the stomach-tube. A well-marked tumour could be felt in the pyloric region and this was freely moveable. He was sent into hospital by Sir William Whitla who had seen him in consultation. The case was regarded as malignant. On July 22nd, 1902 I opened the abdomen. A fairly moveable tumour of the size of a Tangerine orange was found at the pyloric end of the stomach; the adhesions were limited, no enlarged glands could be felt, and there was no sign of any secondary deposit in the liver. The stomach was enormously dilated and contained a large quantity of fluid. Anterior gastro-jejunostomy was the operation selected, as I feared that we would inevitably soil the peritoneum if we attempted Hacker's posterior method. When the stomach was opened three pints of fluid were syphoned off before completing the gastro-intestinal junction. When this had been done several stitches were inserted on each side for at least one inch beyond the new opening, so as to prevent, if possible, the regurgitation of bile, which is frequently such a troublesome complication of the anterior operation. Recovery was uninterrupted. He left hospital three weeks later able to eat ordinary food with perfect comfort. Three months later he came to see us, the tumour could no longer be felt, and he had gained one and half stones in weight and felt in excellent health.

CASE 11. *Dilated stomach; toxæmia; gastro-jejunostomy; death from pneumonia.*—The patient, a medical man aged 56 years, had always had "a bad stomach." Five years previously he had a severe stomach attack with pain and vomiting. He made a fair but incomplete recovery. For the past two years he had suffered from attacks of vomiting coming on every second day but without pain. The vomited matter was enormous in quantity—from four to five pints—very acrid, and frequently very offensive. Some time before calling on me he had seen Dr. Calwell who advised operation. When I saw him first, on July 14th, he was very weak and greatly wasted. He came, he said, to arrange for operation but first intended to take a change of air with a view to gain some strength. I urged immediate operation; failing in this I persuaded him to wash out his stomach during his holiday. He did so and obtained so much relief that he went back to his practice. He soon, however, again began to fail and vomited each evening in spite of lavage. About the middle of September, 1902, he undertook some heavy work; on the same evening he fainted and continued very ill till Sept. 29th when he finally made up his mind to go to Belfast for operation as he was evidently sinking. On the way he had two or three fainting attacks. On arrival I saw him with Mr. R. Hall and Dr Calwell; he was then very ill, evidently suffering from severe toxæmia. His face was pinched and sallow, his tongue was dry and cracked, and he complained of intense thirst. He had contracted pupils and a rapid and very intermittent pulse. He was drowsy and apathetic and had slight wandering delirium. We decided that it was better to operate, as he was evidently sinking. Accordingly on the 30th posterior gastro-jejunostomy was performed. He rallied well and his pulse and general condition steadily improved till the fourth day when the temperature began to rise and his breathing became hurried; the stethoscope revealed a patch of pneumonia at the root of the right lung, which steadily progressed and he died on the tenth day. From the third day almost to the last he could take nourishment freely by the mouth. The abdomen was soft and painless throughout. The expectoration rapidly became purulent and contained numerous staphylococci; the pneumonia was evidently septic, and if not actually caused by the toxins absorbed from the stomach before operation they must have predisposed the patient to the attack.

CASE 12. *Pyloric obstruction, gastro-duodenostomy; complete relief.*—The patient was a woman, aged 48 years, who had suffered from her stomach for three years. At the outset of her illness she had an attack of hæmatemesis, and she then passed blood in the motions. Since then she had complained of severe continuous pain in the epigastrium, which was aggravated by food; vomiting occurred after all kinds of food. She steadily lost weight and when admitted to the Ulster Hospital under the care of my colleague, Dr. J. Tennant, on May 18th, 1902, she was greatly wasted, only weighing 4 stones 1 pound. Examination showed the stomach to be slightly dilated. The contents after a test-breakfast contained no free hydrochloric acid, but butyric acid was present in small quantity. After six weeks' treatment without appreciable benefit Dr. Tennant asked me to see her. Operation was suggested and promptly accepted. Dr. Tennant kindly asked me to assist him and I am further indebted to him for permission to include the case in this series, more especially as it affords the only instance of gastro-duodenostomy in the list. The abdomen was opened by Dr. Tennant on July 11th. We found some adhesions between the omentum and the first portion of the duodenum. The pylorus and duodenum came freely into the wound; the pyloric ring was indurated, especially on its posterior aspect, where some distinct thickening could be felt. We rapidly considered the relative advantage of pyloroplasty, which is the favourite operation for such a condition, and gastro-duodenostomy. The latter operation was selected because (1) it did not involve cutting into diseased tissue and (2) because we had a long, freely moveable, first portion of duodenum to work with. Junction was effected by a double row of continuous suture. The operation lasted one and a half hours. Recovery was rapid and complete. The patient was discharged one month after operation, able to eat ordinary diet with comfort, having gained 1 stone 5 pounds. On Nov. 26th, four and a half months after the operation, she was in excellent health and weighed 6 stones 10 pounds, a total gain of 2 stones 9 pounds.

The remaining six cases cannot very well be classified. They include one case of separation of adhesions and gastrotomy, one case of excision of an ulcer, one case of infolding of an ulcer and indurated area, one case of gastro-jejunostomy for duodenal adhesions, and two cases of exploratory laparotomy in which though the patients had complained of stomach symptoms for years nothing could be found to account for these symptoms when the abdomen had been opened. The patients in all six cases recovered.

CASE 13. *Extensive adhesions; separation of the adhesions; recovery.*—The patient, a woman, aged 22 years, had suffered for eight years from persistent gastric pain and vomiting, and had repeatedly been in hospital. On May 2nd, 1901, at the request of Dr. Calwell, I opened the abdomen. Professor T. Sinclair kindly assisted me and gave me the benefit of his advice. Several adhesions were found on the anterior surface of the stomach, these were separated without difficulty. The stomach was adherent posteriorly and could not be drawn freely into the wound, but the pylorus and duodenum could be easily seen and examined. Nothing abnormal could be detected in them. Numerous large firm glands could be felt and seen between the folds of peritoneum leading from the stomach. One of these of the size of a large nut was removed for purposes of examination. Macroscopically it appeared to be tuberculous, unfortunately it got lost, and I was therefore unable to obtain a pathologist's report as to its microscopical character. Next the stomach was opened and an attempt made to examine the mucous surface, but this proved very unsatisfactory owing to the posterior adhesions. The gastrotomy wound was closed by a double row of continuous suture and nothing further was done, though the glands had evidently been infected from a mucous surface, the peritoneum being quite healthy. Recovery was uneventful. She got complete relief from the pain and vomiting and left the hospital with good digestive powers one month later. I heard of her a year subsequently and was informed that she was then in good health. I regret that I have been unable to trace her so as to submit an up-to-date report for your information. I am unable to explain the relief in this case, except it depended on the division of the anterior adhesions which were weak and inclined to stretch. In view of a more extended experience I should now do a gastro-jejunostomy in a similar case.

CASE 14. *Chronic ulcer; excision; recovery.*—The patient, a woman, aged 24 years, under the care of Dr. W. J. Wilson of Larne had suffered from her stomach for eight years. She complained of very severe pain after food and this was her only symptom. She was seen by Sir William Whitla and on two occasions had tried prolonged rest in bed but relief was transient; as soon as she got up her enemy attacked her as

wickedly as ever. She went to Belfast and entered a nursing home. On Feb. 1st, 1902, in the presence of Sir William Whitla, operation was undertaken. We found no trace of adhesions. The stomach was easily drawn into the wound and at first sight appeared to be quite healthy; closer examination, however, revealed an indurated area of about the size of a sixpence on the anterior surface near the lesser curvature, about two and a half inches from the pylorus. This was excised and its mucous aspect exhibited a clean cut ulcer of the size of a threepenny-piece. The wound was closed by a double row of continuous suture. The patient made a rapid recovery and left the home within the month able to eat ordinary food with comfort.

I am sorry to say that the improvement in this case was not fully maintained. The patient called on me recently to report herself (one year after operation) and she stated that she now suffered from flatulence and feeling of fulness after food but that she had no return of the old pain. She, however, looked well and was much stouter than she had been. Looking back on this case I think that it would probably have been better to have performed a gastro-jejunostomy.

CASE 15. *Old-standing ulcer; commencing hour-glass contraction; ulcer infolded; cure.*—The patient, a woman, aged 32 years, had suffered from indigestion for about 12 years, severe pain coming on one or two hours after food, followed by nausea and sometimes by vomiting. I saw her first in August, 1902, and recommended complete rest in bed and some alkaline powders. She gave this treatment a fair trial but without benefit. I therefore suggested operation and sent her to Dr. Calwell who after careful examination also advised operation. She went into a private hospital and on Oct. 20th, 1902 assisted by Dr. Calwell, I operated. We found a well-marked ulcer surrounded by a zone of induration, adherent to the anterior abdominal wall and to the left lobe of the liver. The adhesions were divided and the ulcer was then found to extend round the lesser curvature to the posterior surface. Old silvery adhesions connected the posterior surface to the pancreas; these having become elongated by stretching were easily divided when a commencing hour-glass contraction was seen. I decided to infold the entire ulcerated area without opening the stomach. This was done by a single row of continuous silk suture which extended about four-fifths round the circumference of the stomach. The patient made a rapid and complete recovery and is now in excellent health and able to eat the ordinary diet of her home without any inconvenience.

In May, 1901, in a paper read before the Royal Academy of Medicine in Ireland I ventured to suggest that simple infolding of the ulcer should prove efficient, but I had not then had an opportunity of testing the method and I confess that I did so in this instance with some little anxiety. The chief aim of the operator is to secure rest so as to give the ulcer an opportunity to heal. It is generally considered that gastro-jejunostomy is the best method of securing this much desired rest and hence the popularity of this operation with most surgeons, notwithstanding its somewhat high mortality and subsequent complications. If, however, we consider the effect of infolding a given area of stomach wall you will, I think, see that the result is to secure absolute rest by cutting that area off from all peristaltic movement, and it is probable that in a very short time the area thus infolded undergoes complete absorption. The result of this case encourages me to recommend this method with confidence in suitable cases as it certainly involves a minimum of risk, though so far as I know no other operator has deliberately carried out this procedure.

CASE 16.—*Duodenal adhesions; gastro-jejunostomy; recovery.*—The patient was a woman, aged 30 years, who was under the care of Dr. R. A. Shekleton of Newtownards. She had suffered from sickness and vomiting as a child; for the past 16 months she had been sleepy, thirst, and weakly and complained of a throbbing pain in her stomach. She was in the Royal Victoria Hospital in June, 1902, when her stomach was found to be slightly dilated and contained a trace of free hydrochloric acid. She had pain over the left ovary, for which she was seen by Professor J. W. Byers. Under Dr. Shekleton's care the stomach was regularly washed out and every therapeutical measure was employed, but she steadily failed and her weight, which had been 8 stones, fell to 5 stones 11 pounds. On Jan. 17th, 1903, she entered a nursing home in Belfast, under the care of Dr. Calwell. She complained of torture on walking or driving and of a constant feeling of distension and tenderness over the pyloric region. The stomach was slightly dilated; there were a trace of free hydrochloric acid and a trace of lactic acid. As she did not improve operation was suggested, though the symptoms were indefinite. She at once agreed. On the 26th I operated, assisted by Dr. Calwell. We found the stomach to be healthy, but recent adhesions were present, surrounding the first part of the duodenum, and numerous enlarged mesenteric glands were observed. Posterior gastro-jejunostomy was performed. There was little or no shock but almost immediately after she came from under the influence of the anæsthetic the abdomen became distended, so that within four hours the distress was urgent. Strychnine hypodermically and enemata failed to give relief and six hours after the operation we decided to give five grains of calomel by the mouth. This was followed in six hours by two drachms of salts and, as this also failed, two ounces of castor oil were given on the morning after operation and repeated enemata of turpentine and water were administered. The anastomosis stood the severe test well and finally 18 hours after operation flatus was passed per anum, followed during the night by a copious motion and the patient was out of danger. She is now (August 25th, 1903) in excellent health.

CASE 17. *Exploratory laparotomy; healthy stomach.*—The patient, a woman, aged 21 years, had a history of stomach trouble for years. She had been in hospital under the care of Dr. James Cuming in June, 1899, when she complained of pain coming on immediately after food, nausea, and vomiting. The case was regarded as one of gastric ulcer. She was discharged after six weeks of careful dietetic treatment, but the improvement was only slight. Shortly after returning home she was, she said, as bad as ever and then hæmatemesis developed. She again went to hospital under the care of Dr. Calwell on Feb. 14th, 1900. On admission her symptoms were as follows. She had pain, sometimes immediately, sometimes at varying intervals after food. She vomited frequently, but there was no hæmatemesis while in hospital. She complained of pain and nausea after all kinds of food. Peptonised milk only made her feel worse and she vomited immediately after taking it. She was put on nutrient enemata but without benefit. Dr. Calwell asked me to see her with a view to operation. She at once assented. Accordingly, on March 19th, assisted by Professor Sinclair, I operated. We found an apparently healthy stomach and duodenum. The abdomen was closed and she made a good recovery. She was fed by the mouth from the first and a week after operation she could eat fish, chicken, and chop with perfect comfort. Four months after operation she came to report progress and stated that she had derived great benefit from the treatment. In March, 1901, she came to me complaining of pain in the left kidney and frequent micturition. She suggested operation, but in view of my previous experience I declined to satisfy her surgical thirst. We regarded the case as a manifestation of hysteria.

CASE 18. *Exploratory laparotomy; healthy organs.*—The patient, a man, aged 54 years, had complained for ten years of chronic constipation and continuous burning pain in the pyloric region, which pain was aggravated by food. He occasionally vomited after food. He had tried many physicians and had been in hospital for 11 days under the care of Dr. Calwell in 1901 who then regarded the case as one of chronic constipation and hypochondriasis. Since leaving hospital he had tried numerous remedies; he became more and more depressed, and finally Mr. R. Hall sent him into my ward for exploratory incision. Routine examination of the stomach gave no indication of distension; there was no free hydrochloric acid. Dr. Calwell saw him with me and we decided that, as all else had failed and as the patient himself wished for it, an exploratory operation would be justifiable. On Jan. 13th, 1903, I opened the abdomen. I examined the stomach, the gall-bladder, the pancreas, the kidneys, and the appendix but could find no evidence of disease. The wound was therefore closed. He had no ill-effects from the operation and on Feb. 4th, three weeks after operation, he said that he felt very comfortable, his old pain was gone, and he was much improved by the operation.

This series of 18 cases represents all the operations I have undertaken for non-malignant disease of the stomach. There were four deaths, but while I am in duty bound to record these I do not think that they are a correct indication of the risk of operation, three of these deaths having, as already explained, been altogether exceptional. If we omit these the mortality would be 1 death in 15 cases—i.e., between 6 and 7 per cent.—and this, I think, should be capable of still further reduction.

The very important question now arises, What are the indications for surgical treatment in gastric ulcer?

1. Fortunately there are some cases which offer no difficulty. All cases in which the cause of symptoms is mechanical are essentially surgical. By no possibility could medicinal or dietetic treatment be expected to cure either an hour-glass stomach or a case of pyloric stenosis. The former condition, however, is rarely diagnosed previously to operation. The latter is now comparatively easy to detect. For dilated stomach treatment by washing out is a very favourite one and gives great relief at first by removing the toxic products of feeble digestion and excess of acids, but at the best it is only palliative; and while it may be recommended in the first instance common-sense suggests that the sooner the actual cause of the dilatation is removed the better, as the risk of operation increases in direct proportion to the delay.

2. There is, however, as you all know, a very large proportion of cases in which no such definite indication exists. Here the question becomes one for the physician. I am quite satisfied that he is not justified in recommending operation till he has exhausted every other method of treatment, and I do not think that these cases should be submitted to early operation, the acuteness of the symptoms and response to treatment must decide this. Before any operation is undertaken the patient should be submitted to a period of prolonged rest in bed (not less than one month) with rigid dieting or rectal feeding. If this fails to give relief operation is clearly indicated. On the other hand, it is obviously wrong to allow sufferers to struggle along year after year in the position of chronic invalids, useless to themselves and a burden to their friends, without at least offering them the chance of relief by surgical means.

3. Hæmatemesis sometimes calls for surgical aid but the operative mortality is very high. Two cases have come under my notice. Some time ago I saw with Dr. M. O'Malley a young girl who had vomited a very large quantity of blood and was blanched and almost pulseless. She stated that about two years previously she had had a similar attack at her home in England but that she had made a good recovery. We sent her into hospital where she was under the care of Dr. Calwell. The hæmorrhage seemed to have ceased and she was apparently recovering when on the third day after admission she again vomited blood freely and died in about an hour. I showed her stomach at one of the meetings of this society. There was an ulcer of about the size of a split pea which had perforated a large artery. The second case was a man sent into hospital by Sir William Whitla. He was vomiting blood freely, but as his pulse was not unduly weak it was decided to give a trial to chloride of calcium and adrenalin. He too, however, suddenly got worse and when seen again was evidently moribund. Such cases are very difficult. Had we operated death would have been attributed to our interference, yet I now feel that I should have operated in both instances.

A great difficulty lies in the surgeon's way in all these cases. He can rarely say definitely what he is going to do till the abdomen is opened. The operation in this sense, at least, must be regarded as exploratory, but with increased accuracy of clinical diagnosis and the knowledge gained by operative work our opinion will gradually become more definite and precise.

Belfast.

A CASE OF AUTOMATIC WANDERING LASTING FIVE DAYS.

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THE patient was a telephone linesman, aged 37 years. He was a sparely built man, but appeared to be perfectly healthy. He was temperate and denied having suffered from any form of venereal disease. He had never suffered from epileptic fits. His father died from "softening of the brain"; the exact nature of the illness could not be ascertained but he was never sent to an asylum. His father's brother was an epileptic. Of his own brothers one died from "convulsions" as a baby and an elder brother was a confirmed epileptic. The patient has had two prolonged attacks of automatic wandering and many of only short duration. The first prolonged attack occurred in November, 1900. He left his home in Wood Green to go to work but did not arrive at his destination. He remembers having his breakfast and starting, but after that there is a blank in his recollections until late in the following afternoon (30 hours later) when he suddenly "woke up." He describes himself as having felt "half startled" as if awaking from a disturbed nap. He found that he was in Hampstead for no reason. On counting his money he found that he had spent 2*s.* and as he was not hungry he had probably been able to buy himself food. He did not feel particularly ill and was able to return to work the following morning. After this attack he had slight attacks at intervals of some weeks. They came on as he was walking in the street. He would suddenly find that he had "lost himself" and that he was in quite a different place from the one he last remembered. On getting his bearings he could easily work out how long the attack had lasted. He thinks that they could not usually have been of more than a few minutes' duration and that only on one occasion could the lapse of consciousness have lasted half an hour. None of these attacks occurred when he was on a ladder attending to telephone wires, but only when he was walking along the street.

The second prolonged attack, which lasted for five and a half days, occurred in January, 1903. He was then living in the neighbourhood of King's Cross. He left his house at 6.45 one Monday morning to go to work in Wardour-street. He recollects looking at the clock on the Euston Hotel as he passed at 6.50. After this he remembers nothing. He did not arrive at the office and was not seen by any of his friends. At 4 P.M. on the following Saturday he suddenly "woke up" and found himself to his alarm in a strange town. On asking a policeman he found that the town was Leighton Buzzard where he had never been before and with which he had no associations. He had a violent headache, the heels of his boots were worn down, and the soles of his feet were severely blistered. His clothes were muddy as if he had slept by the road-side. He was not particularly hungry and found that he had spent several shillings, presumably on food, and he still had enough money left to enable him to return by rail. From that time no recollection has come back to him of the way in which those five days were spent except that he has some hazy idea connected with "Watford," but he has no recollection of having visited it. It is probable that he did so as it lies directly in the route either by road or rail. I saw him a few days after the attack and can confirm his statement about the severe blistering of his feet. On examination I could find no evidence of any organic disease of the nervous system I could elicit no history of vertigo or any definite form of *petit mal*, but he said that occasionally a "brownish mist" came before his eyes when he was walking about. He was in good health and anxious to resume his occupation. His employers, however, fearing that he might have some mishap while working on a ladder declined to take the responsibility, although as he was a good workman they kept him on in their employment at some safer but less highly paid work.

The not unnatural explanation of fellow workmen is that the victims have gone off on some frolic and have invented an ingenious story to account for their absence from work. This man, however, was a good steady worker, very little money was missing from his pockets and there is the history of numerous similar but more transient attacks. There is no doubt in this man a strong epileptic tendency, as shown in his family history, and the attacks were probably of the same nature as those seen after epileptic attacks, both major and minor. Of these I have recorded instances in previous papers.[1] This case, however, comes more into line with those which have been described by Charcot and others in which the automatism appears to replace the fit. I have fully described two such cases in the St. Thomas's Hospital Reports for 1898, which may be briefly recapitulated.

The first case was that of a serjeant-major in the Guards who left Chelsea for a walk on a Monday evening. Two and a half days later he suddenly "woke up" with a sensation of something giving way in his head on a road near Newtownstewart in the North of Ireland, a place of which he had scarcely even heard. He had arrived there the previous evening and put up at an inn and had told the host that he had walked from Londonderry. He had spent only the amount of money that would have been necessary for such a journey. On his return he was placed under arrest, but on medical evidence was invalided out of the army. I put him on

[1] THE LANCET, July 5th, 1890 (p. 14), and July 21st, 1894 (p. 128).

bromide of potassium which he took regularly for some months, but then, unfortunately, left it off and 18 months after the first he had a second but shorter attack. He left his house in Battersea and "woke up" five hours later footsore and tired in Croydon where he had never been before. In his case there was no history of epileptic attacks, but he had occasional sudden attacks of mental depression which did not occur while he was taking bromide.

The second case was that of a policeman who left his house at 6.30 P.M. to look for some money which he was excited at having lost. He remembered passing the end of the street, but after that everything was a blank until 5 A.M. next morning when he found himself on an Australia bound steamer passing Gravesend and was only just in time to be sent ashore with the pilot. He had a severe occipital headache and was extremely hungry. He had only spent a shilling. He had an excellent character for sobriety. He had never had an epileptic attack, but had had two alarming attacks of vertigo, on both occasions when sitting in a barber's chair with his head thrown well back in order to be shaved. Also, like the guardsman, he had had transient spells of mental depression.

The periods of unconsciousness in the preceding cases have been greatly exceeded. Charcot[2] relates a case in which a man was in this automatic condition for eight days and travelled from Paris to Brest, and there is a still more remarkable case, the particulars of which are given by James,[3] in which the automatism lasted two months.

The medico-legal importance of such cases is evident. Automatism after actual epileptic fits is well recognised by medical men and even magistrates are less sceptical than they were about its possibility. It is well that it should be known that exactly similar attacks may occur not only after epileptic attacks but even in those who have never suffered from actual fits. But it may be extremely difficult in any given case to decide whether a person is truthful in professing to be entirely oblivious of past actions on his part. In the cases which I have related in this paper the aimlessness of the wanderings, the immediate return home, and the painful apprehension of the sufferers lest they might have a fresh attack, were enough to convince those who saw them that they were not simulating. If on a future occasion they were to do something unlawful during an attack of automatism they might find it extremely difficult to extricate themselves. I have persuaded these patients to carry with them everywhere a card stating that they are liable to such attacks and giving the names of two responsible persons who could be communicated with in the event of their being found wandering or getting into the hands of the police.

Wimpole-street, W.

A NOTE ON THE ETIOLOGY OF YELLOW FEVER.

BY JAMES B. TOMBLESON, M.B., B.CH. OXON.

As an excuse and, I hope, not an entirely insufficient one, for adding to the literature of this subject I plead an interesting experience. While working in my laboratory with a bacillus found in pure culture in the blood of a yellow fever patient after death, in a town where yellow fever has never been known apart from one or two imported cases—in which town, too, I had been living uninterruptedly for 27 days since leaving the death-bed of the above-mentioned patient—I contracted the disease myself. Happily I did not suffer in a severe form and after recovery I found the same bacillus in my own blood, taken at the beginning of the disease. Having, I hope, justified myself before writing of my work I wish to thank Dr. C. W. Daniels for so kindly taking charge of the slides and specimens connected with the work and for arranging for the printing of this article; and Messrs. S. Pearson and Son for providing me with my laboratory equipment.[1]

My idea in giving this account of my work is to give, first, a statement of the different occurrences in chronological order; secondly, a description of what I know of the properties, &c., of the bacillus; and thirdly, a short discussion of the bacillus in its relation to yellow fever.

On Jan. 3rd, in Coatzacoalcos, I was bitten in the evening about 8.30 P.M., in the room of a patient suffering from yellow fever, by two brown mosquitoes which appeared to me to be a variety of culex. I killed the mosquitoes and thought no more about the matter. On the 8th, in my laboratory at Rincon Antonio, at about 4.30 P.M., I was suddenly seized with pain in the lower part of the back and loins, aching of the limbs, and frontal headache. I took my temperature and found it to be 99·6° F., with a pulse-rate of 80. I at once took 15 grains of sulphate of quinine and went to my house. The symptoms became rapidly worse, my face got red and swollen in appearance, with the conjunctivæ injected, and the eyes became very intolerant to light. At 5.30 P.M. my temperature was 101·6° with a pulse-rate of 80, and at 6.30 the temperature was 103·2° with a pulse-rate of 80. I went to bed at about 6.45, drank some whisky and Apollinaris water, and shortly afterwards began to perspire. After some hours I went to sleep and woke in the morning after a restless night with a temperature of 99°, feeling a little weak and aching in the eyes and back, but otherwise little the worse for my experience. The weakness passed off in two or three days. Immediately after I entered my house my wife took three slides of blood from my ear with antiseptic precautions and these I examined on the following days. I found no malaria organisms, but (1) a short oval bacillus almost coccoid in form; (2) a longer but still short bacillus with rounded ends; and (3) a long beaded bacillus resembling in one specimen the tubercle bacillus very closely.

On Jan. 19th I had a precisely similar attack, an accurate reproduction of the first in every way, except that it was slightly less severe. In this case, too, my wife took three blood slides which on examination showed the same bacilli as those which were seen in the earlier slides, with No. (1) in much greater profusion and No. (3) in very small numbers; in these slides, too, I found no malaria organisms though I searched very carefully. At this time I did not connect these occurrences with yellow fever at all seriously but simply kept the slides and data for future reference.

On Feb. 24th I went to a case of yellow fever five or six days old and, unfortunately, beyond the chance of recovery when I arrived. Soon after my arrival I took two slides of blood from the finger, putting two streaks of blood on glycerine agar, and a cultivation in peptone broth. These I incubated by keeping them in my black travelling case and putting it in the sun for half an hour every now and then. One agar tube after two days showed a growth which afterwards turned out to be the staphylococcus pyogenes; the other remained sterile, so on the 26th I poured some of the patient's urine into the tube, allowed it to stand for a minute, and then poured it off again, heating and plugging the end of the tube. The patient died on Feb. 28th after a typically severe course of the disease (albuminuria, black vomit, black motions, uræmia with Cheyne-Stokes breathing, hiccough, &c.) and immediately after death I extracted three cubic centimetres of blood from the liver by means of a sterilised hypodermic syringe and from this I took one slide, putting the rest into a sterile test-tube and plugging. On the same afternoon I returned home to Rincon Antonio and placed the culture tubes and the post-mortem blood into the incubator until the following morning.

The results of the examination of these slides and cultures and the cultures subsequently taken were very interesting. In the fresh blood slide, in the post-mortem-blood slide, and in the slide taken from the incubated post-mortem blood serum I found an oval bacillus precisely similar in appearance to that found in the slides of my own blood above referred to *and that bacillus alone.* In the culture (agar) of the urine, which was a very full one, the whole surface of the agar being covered with colonies, I found the same bacillus with a short rather more slender rod. In the blood broth I found the same bacillus again with a longer rod. Beyond mentioning these facts it seems to me hardly necessary to go into the examination. I had no difficulty in getting pure cultures and they grew well on ordinary peptone agar.

As I had found this bacillus in such purity and so uniformly I thought it worth while to experiment further with it. Accordingly I injected two cubic centimetres of an

[2] Leçons du Mardi à la Salpêtrière, 1889.
[3] Principles of Psychology, vol. i., p. 391.
[1] The slides referred to were sent with Dr. Tombleson's paper to Dr. C. W. Daniels and most of them have been forwarded to him at Kwala Lumpor. Dr. G. C. Low, through whom we received the paper, has others of them and states that bacilli answering to Dr. Tombleson's descriptions are to be seen in them.—ED. L.

emulsion of a pure culture in normal salt solution directly into the liver of a native dog, an animal more than half coyote. Three days later the dog was evidently ill and vomited bilious matter twice; its condition got worse up to the seventh day when it began to recover, so on the eighth day I injected another stronger dose; the dog was ill again on the next day but afterwards began to recover, and on the fourteenth day it appeared to me that it was out of all danger, so I shot it and took some blood from its heart. I also took some of its liver, spleen, and kidneys (which I have not examined). I tried its blood serum with a pure culture of the bacillus and found that, diluted 50 times, it clumped a young agar culture, the reaction beginning in two minutes and being complete in ten minutes. Thus I proved to my own satisfaction that the bacillus under examination was at all events pathogenic.

Next I procured a monkey and after letting it get comfortable in its new home I injected directly into its liver a similar dose to the one I used with the dog. In 12 hours the animal was ill and in three days it died with black vomit and motions, albuminuria, Cheyne-Stokes breathing, and hiccough. Dr. Martinez, my colleague, who with me witnessed its death, was struck, as I was, with the close likeness to the death of a human being from yellow fever. I took, immediately after death, specimens of its blood and of most of its organs. Pieces of the liver, the kidneys, and the spleen I smeared on agar and incubated for 12 hours; the rest I hardened in formalin 10 per cent. and alcohol 90 per cent. The blood serum and the organs (incubated and not incubated) contained the bacillus in easily recognisable numbers, *the slide of blood serum being indistinguishable in appearance from the one taken from the yellow fever patient mentioned earlier.* From the blood I cultivated the same bacillus without difficulty and it grew in the agar in which I incubated the liver and other organs in pure culture.

On March 27th I was suddenly attacked by what turned out to be a modified attack of yellow fever and I give a fairly detailed description of this, so that there can be no doubt on the subject; the connexion between it and my earlier experiments I shall give later. The onset was sudden. At 10.30 A.M. sharp pain in the back and the limbs rapidly developed with severe frontal headache, with pain in the eyes and intolerance to light. At 11 A.M. the temperature was 101·4° and the pulse was 80. At 11.15 A.M. the temperature was 102·3° and the pulse was 84. Three blood slides were taken. At 11.30 A.M. the temperature was 103·2° and the pulse was 104. I drank a cup of hot tea, very sweet, and wrapped myself up in many blankets. I soon began to perspire. At 12.30 P.M. the temperature was 102·5° and the pulse was 84. I vomited bilious matter, was washed, and was put in ordinary coverings. At 1.30 P.M. the temperature was 101·8 and the pulse was 66. I vomited bilious matter again. At 3.30 P.M. the temperature was 101·4° and the pulse was 66. I had two dozes of sleep a quarter of an hour each. At 5.30 P.M. the temperature was 100·6° and the pulse was 72. A very definite yellow tinge was present in the conjunctivæ and on the skin of the face, the flexor surface of the arms, and the abdomen. At 7.30 P.M. the temperature was 99·8° and the pulse was 58. I took one ounce of brandy and vomited again. At 8.30 P.M. the temperature was 100° and the pulse was 64. I slept fairly quietly. On March 28th at 4.30 A.M. the temperature was 99·8° and the pulse was 64. I took four ounces of milk and Apollinaris water in sips. At 8.30 A.M. the temperature was 99·4° and the pulse was 64. The urine was high-coloured and there was a large quantity of albumin. The yellow tinge was more evident still. From this stage I got slowly but surely better; on the next day my temperature fell to normal and my pulse rose to 72, which is for me normal, and two specimens of urine being taken one only showed a trace of albumin. By April 5th I was able to move about a little and examined the blood-slides taken in my bedroom. I found the same bacillus in the slides and also found that my blood serum clumped a ten days old culture of the bacillus from my laboratory, a dilution of 1 in 20 being employed and the reaction complete in ten minutes. I had not a younger culture, not having been able to prepare one but a control hanging-drop established the test.

This ends my first part and I will now pass on to the properties, &c., of the bacillus. The description is not as full as I could wish but ill-health in myself and others has made it impossible for me to do more. The heat here makes the use of gelatin media extremely difficult and tiresome. The bacillus, as will be seen from the description, is in many ways very much like the bacillus icteroides of Sanarelli, a complete description of which I had not seen until just before my own attack of yellow fever; but it is difficult to say whether the bacilli are the same, as from my reading on the subject it appears that no two descriptions of the bacillus icteroides are alike and the differences are in important points, such as the staining by Gram's method, the fermentation of milk, glucose, and so on. The bacillus as I have seen it is from 0·5 μ to 2 μ in length, the shorter forms being found more particularly in the blood and in cultures, and the longer forms in the tissues and in very old cultures. The middle-sized forms are also found in larger numbers in cultures grown at the ordinary room temperature (from 20° to 25° C.). The bacillus is actively motile and this is especially so in the middle-sized forms; the longest form is hardly motile, if at all. The bacillus stains fairly well with all the ordinary stains and also with Gram's method (this is much more definite when carbol-gentian violet is used than with aniline gentian violet, but is fairly good with aniline and with Weigert's modification). For demonstration in tissues infinitely the best results are obtained by staining for one hour in toluidin blue, decolourising with very faintly acid alcohol and counter-staining with eosine. This gives much better results than Gram's method, by which, however, the bacillus can be differentiated.

The bacillus grows well on all the ordinary artificial media and in broth.

Gelatin plates.—Deep colonies, small solid-looking lumps, oval in shape, granular in appearance, and yellowish-white in colour. Superficial colonies, greyish-white and granular.

Gelatin streak.—Slow growth; nothing typical. Does not liquefy the medium.

Agar plates.—Deep colonies the same as in gelatin, having the same peculiarly solid look; these do not grow more than one-sixteenth of an inch in length even in two or three weeks.

Agar streak.—Similar to the descriptions of Sanarelli's bacillus, but I do not notice any great difference between 48-hour cultures at 37° C. and at the temperature of the room. The centre of the streak is raised and has a separate outline on the top of the side parts and the growth is rather fluid in consistency.

Agar stab.—Nothing characteristic was noticed, but my agar was not very clear. Does not radiate into the medium.

Broth.—In broth the bacillus grows well, forming cloudiness and later a sediment at the bottom of the tube, tends to decolorise the broth.

Milk.—In milk the bacillus grows fairly well; does not coagulate in seven days.

The bacillus will grow at any temperature between 20° and 40° C. and probably at even higher temperatures. It is aerobic and facultative anaerobic and it does not produce gas in sugar media. It resists boiling for half an hour.

Spore formation.—The preceding statement makes me incline to think that spores are formed and also what I shall say next, but I never succeeded in staining any spores in specimens by any differential method. I tried growing the bacillus on agar in a tube open at both ends, corked, with a glass tube through each cork. After a week it seemed quite dry and I blew air gently through the tube with the mouth on to an agar plate, *once only*; this agar plate I incubated and 24 hours later it showed 27 colonies. While doing this I inadvertently drew air through the tube inwards and *this occurred eight or nine days before my own attack.* Also, the forms seen in several slides and in old cultures, especially the latter, certainly appear to be forms just before sporulation. Moreover, the bacillus resists drying to at all events a very great extent; a culture dried at 30° C. for three weeks grows just as well as ever if transplanted to a fresh medium.

And now we come to the discussion as to whether or not the bacillus in question is or is not *the* factor in the etiology of yellow fever. Two great objections made to all bacilli advanced as possible causes of yellow fever are these: (1) Why has the bacillus not been found before? and (2) why are cultures of the blood, &c., sterile? Now as to the first objection I found it in the following way. When the slides of my blood were taken the first time carbol-fuchsin and borax methylene blue happened to be the only stains which I had ready prepared which seemed to me appropriate, and I had three slides, so (purely as a whim) I put the third slide into water, poured

a few drops of a saturated alcoholic solution of hæmatoxylin into it, and left it for 24 hours to see what would happen, intending if nothing happened to stain it again with something else. The result was that I found the above-mentioned bacilli *stained bright red* in that specimen and nothing satisfactory in either of the others. If I had depended on the borax methylene blue and carbo-fuchsin specimens I should not have found the bacillus. Moreover, in the tissues, unless the bacilli were in large numbers, they would be very easily missed indeed, even stained by Gram's method, unless this was done very carefully with carbol-gentian violet instead of the aniline gentian violet, whereas with toluidin blue they are easily seen, and I believe that toluidin blue is not very commonly used for bacillary staining and may not have been used in other experiments. These reasons, though not an absolute explanation, are still, in my own opinion, sufficient to be reasonably satisfactory.

The second question is much more difficult to answer. I can only surmise that there are times when more bacilli are present in the peripheral blood than is the case at other times, and these times appear to me to be two in number: firstly, at the very outset when the febrile explosion begins (and this time is one at which the physician or bacteriologist is rarely present, or, if present, he is not likely to see any valid reason for taking specimens of the blood for bactoriological examination); and, secondly, when the secondary fever begins after "the period of calm," which time appears to have been considered too late in the disease for the presence of bacteria in the peripheral blood to be likely. These times are suggested to me, as is of course easily seen, by my finding the bacilli at these times in my own blood and in that of another case.

So far, then, we have it that the bacillus was found in my blood in two small febrile attacks; it was found in the blood of a typical fatal case of yellow fever; it was injected into and found capable of producing disease in a wild dog; it was injected into a monkey, producing a disease having the symptoms and typical ending of yellow fever; and it was found after death in the blood and tissues of the monkey in pure culture. It was inhaled by myself and I, after an interval of eight or nine days, contracted yellow fever, happily cut short, as I believe, by the comparative immunity produced by the two mild attacks previously mentioned; my blood serum after recovery clumped a motile culture of the bacillus and my blood taken at the outset of the disease contained the bacillus.

Surely here is a chain of evidence which goes far towards proving that in this bacillus we have the germ of yellow fever. Another reflection suggested by the experiences narrated above is that a comparative immunity may be, and probably is, caused in those who residing in an infected district yet never have a serious attack of the disease, by a series of one or more slight attacks which, though they present the typical early symptoms of a case of yellow fever, are, from their want of serious aspect, regarded as malarial in origin. This, I believe, is what occurred in my own case and I also believe that by this means I was saved from an attack which would have been most serious, probably fatal.

The experiment with regard to the propagation of the disease in the air and the possibility of receiving the infection by inhalation appears to me to be of the highest importance. When we consider that the urine of one case undoubtedly contained very large numbers of bacilli and that the urine in these tropical climates is thrown anywhere and everywhere we must realise that here is a possible explanation of those epidemics, often quoted, which have occurred in places where there are few mosquitoes or none at all. If, too, though this I have not proved, the bacillus produces spores, a culex fatigans or other foul-feeding mosquito may easily pick up the spores or the bacilli themselves and carry the infection, thus accounting for cases which have arisen when either the infecting case has been throughout protected from mosquito bites or when the interval between one case and the next has been too long to admit of its being a case of direct transmission from one to the other by the mosquito.

There is one other thing only I wish to emphasise before concluding this article and that is the question of cure by antitoxin. My experiment with the dog appears to point to that animal as a suitable one for the experimental production of an antitoxin and if circumstances render me unable to follow this matter up myself I shall feel that my work has done some good if it induces some abler hand than mine to take up this work and, producing a curative serum, to confer the greatest possible boon on the inhabitants, white and coloured, of the yellow fever countries.

POSTSCRIPT.

Since writing the account of the earlier part of my work on the etiology of yellow fever which ended with my own attack I have been able to examine five more cases of the disease and have found in, and cultivated from, each case the bacillus before described. I propose to give a short statement of each case and then a few remarks on points which have become clearer to me since the time of my own attack.

CASE 1.—The patient was an American. This case was of a mild type with all the ordinary symptoms but no black vomit. I found a bacillus in the blood and cultivated it pure from the urine. Very good slides were obtained showing the bacilli in the blood. The patient recovered and never more than one-sixth albumin was present.

CASE 2.—The patient was a Yorkshireman. This was a fairly severe case. Black vomit was present. Over one-half of albumin was present. I found bacilli in the blood and sent two beautiful slides showing them and cultivated the bacillus pure from the urine. Recovery ensued.

CASE 3.—The patient was a Mexican from the high ground. The case was a fairly severe one. Black vomit was present on the fifth and sixth days. The albumin amounted to from one-quarter to one-third. Pure cultivations of the bacillus were obtained from the urine. I could not obtain a specimen of the blood.

CASE 4.—The patient was a Mexican from the high country. I saw him only once a short time before his death. Black vomit occurred every few minutes. I took a specimen of his urine; albumin to the amount of one-half was present. Pure cultivations of the bacilli were obtained.

CASE 5. *Case imported into Coatzacoalcos from Vera Cruz.*—The medical man at Coatzacoalcos sent me a small quantity of blood passed from the rectum of a patient under his care shortly before death. The bacillus was present with the bacillus coli communis and several others from which I separated it without difficulty.

These other cases coming after the earlier work appear to me to make certain proof that the bacillus mentioned is the active agent in the production of yellow fever. They show conclusively that the bacillus is always to be found in the urine of the patient after the appearance of albumin and this is, of course, early in the disease. The importance of this fact appears to me to lie in (1) the value as a method of early and certain diagnosis in doubtful cases, and there appears to me to be always a good deal of doubt in the mind of the practitioner in the first three days of the disease; and (2) the valuable evidence which it provides as to the means of the spread of the disease. Of course, it is a proved fact that certain mosquitoes carry the germ of yellow fever, but it appears to me that beside this means of spread we must consider the possibility of the disease being spread by the inhalation of spores produced in the open air by the growth of bacilli in urine which is thrown on to the ground near the dwelling of the patient in 99 cases out of 100. In fact, in the case of the poorer persons the urine is simply passed on to the mud floor of the house and here is incubation of the bacillus in most favourable circumstances for the production of spores.

In this method of spreading the disease lies the explanation of the fact that drainage has practically cleared yellow fever out of Havana while no one could say that the number of mosquitoes is materially lessened. When I was in Havana last September I caught (and was bitten by) specimens of stegomyia fasciata and culex fatigans, as well as other culicidæ and anophelidæ.

Rincon Antonio, Island de Tehuantepec.

MEMORIAL TO A MEDICAL MAN.—A stained-glass window was unveiled on August 16th at St. John's Church, Halsetown, St. Ives, Cornwall, in memory of the late Dr. Richard William Waudby Griffin. The window consists of three lights and contains figures representing St. Pantaleon and St. Luke. The two saints stand on pedestals, the one holding a vessel containing healing medicine and at the side of the other is the emblematic ox. The vicar in the course of his sermon after the ceremony referred in high terms to the members of the medical profession and alluded to the noble work done in Southampton by one of their number in whose memory the window had been given.

A CASE OF

LARGE BLOOD CYST IN THE ARACHNOID SPACE SIMULATING BRAIN TUMOUR; OPERATION; RECOVERY.

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THE patient was a man, 34 years of age. His family history is marked by a clear tendency to mental instability. His mother committed suicide, one sister is now in an asylum, and an aunt has been temporarily insane. His father died 20 years ago. A "fit" is said to have been the cause of death, but no more precise data are available. The patient had scarlet fever in childhood and a severe attack of enteric fever when 19 years old. He denied having had syphilis. He had been moderate in the use of alcohol and tobacco. In February, 1902, he accidentally fell on his way to his work, striking the right side of the head against a stone wall with some violence. The fall was so severe in its effect as to necessitate his return home and he was unable to work that day. The present illness began in May, 1902, some three months after the fall, with headache. This at first was entirely relieved by bromide and antipyrin, but returned after being relieved for three weeks. From that time it appears to have been uninfluenced by treatment. The headache was described as a shooting pain referred to the right side of the head with dull aching over the right eyebrow. No optic neuritis was detected at this time. On July 2nd he went to Dover but ten days later was brought home, as he began to have difficulty in walking and was becoming dull mentally. When again examined he was drowsy and the simplest mental process seemed to require great effort. He was unable to walk without assistance and there was weakness of the left arm and leg variable in its degree. The pain in the head had in no way abated. Some blurring of the right optic disc was noticed about this time. He was admitted into a local hospital where he remained a month. While there he was noisy and troublesome at night and lost control over the sphincters. He was considered to be insane. There was now increase of the left knee-jerk and ankle clonus was present on the left side. Early in August he was seen by one of us (J. T.) at the instance of Dr. L. Cooper of Rochester, to whom we are indebted for the history of the case. The presence of intense optic neuritis favoured the diagnosis of tumour of the brain and the variable character of the paralysis of the left arm suggested that it was a fluid tumour, possibly an abscess. The patient was therefore admitted to the National Hospital for the Paralysed and Epileptic on August 20th, 1902. We are much indebted to the careful notes of the house physician, Dr. Gordon Holmes, for the following particulars and we desire to express our appreciation of Dr. Holmes's zeal and skill in the management of the case.

On admission the general health was not much deteriorated. Some loss of memory for recent events was present. The gait was irregular and swaying. The deep reflexes were exaggerated on the left side. The loss of sphincteric control and the left-sided paralysis were no longer present. Optic neuritis (swelling 4 D.) with retinal hæmorrhages existed on the right side. There was less marked optic neuritis (swelling 1·5 D.) without hæmorrhages on the left side. Horizontal nystagmus was specially marked in the right eye and on movement of the eyes to the right. The headache was intermittent. There was doubtful tenderness over the right frontal region on percussion. The patient had been taking iodide of potassium prior to admission and this drug was continued in larger doses but it produced no appreciable effect. A diagnosis of cerebral tumour, probably in the right frontal region, was made and operation was decided upon.

First stage of the operation.—On Sept. 1st, chloroform having been given, a flap including most of the anterior half of the right side of the scalp was thrown down and the underlying bone over a large area was removed with the saw by the "chess-board" method. The dura mater was very tense. The scalp flap was then sutured into position.

Second stage of the operation.—On Sept. 6th chloroform was again given and the scalp flap was thrown down. The dura mater was yet more tense and prominent. On incision of the dura mater a tense, fluctuating and pulsating swelling of a maroon-red colour was exposed. It completely filled the floor of the wound and bulged through the opening in the skull. The pulsation was expansile like that of an aneurysm. The opening in the skull was insufficient to expose the edges of the cyst. The cerebral hemisphere was displaced inwards and so compressed laterally as to present the appearance of a ridge about one inch in width on the median aspect of the tumour. The opening in the skull was further enlarged and this stage of the operation was concluded by resuturing the flap.

Third stage of the operation.—On Sept. 18th a temporary ligature was first placed on the internal carotid artery a short distance above its origin. The wound in the head was then reopened; the opening in the bone measured five and a half inches antero-posteriorly by four and a half inches vertically. The tumour, which was not adherent to the brain, was cautiously inveigled from its bed in the arachnoid space by manipulation with the fingers. Its anterior, posterior, and inferior margins were lifted without great difficulty from within the skull, leaving a large space between the brain and the bone. It was attached by a slight adhesion to the dura mater near the posterior inferior angle of the parietal bone and to the cerebral arachnoid over the inferior aspect of the temporo-sphenoidal lobe. It had no connexion with any named vessel, but each of these adhesions was vascular. There were also certain delicate threads of connective tissue between the wall of the cyst and the wall of the cavity in which it lay. In front it almost reached the anterior extremity of the frontal lobe; above it extended to within one inch of the superior longitudinal sinus; below it compressed the apex of the temporo-sphenoidal lobe, extending under the brain to the clinoid processes; while behind it was spread over the surface of the parietal and occipital lobes. On removal it measured seven inches long, four and a half inches from above downwards, and one and a half inches in thickness. When within the skull the tumour probably occupied a larger superficial area and was less in width as a consequence of the great pressure to which it was subjected. Its removal was only attended with slight bleeding. The hemisphere of the brain was much compressed and its convolutions were flattened. It visibly expanded when the ligature was removed from the internal carotid. The scalp flap was replaced and sutured in the usual way.

The patient made a good recovery and was discharged well on Jan. 15th, 1903. He had a fit in February. He was in perfect health on May 26th last and was present at the clinical lecture at the hospital on that day.

This case naturally raises the old question of the occurrence of hæmorrhages and false membranes within the arachnoid space so ably dealt with by Dr. J. Wigles-worth in the *Journal of Mental Science* for January, 1888. In 400 post mortem examinations of insane patients he found blood or membrane, or both combined, in the cerebral subdural space in 42 instances, of which 22 were cases of general paralysis of the insane. Certainly in some of these cases there was a history of traumatism, such as falling off a chair. Thus of one case it was said, "She fell off her chair one morning in a fit; two hours after this she presented all the symptoms of a copious hæmorrhage." At the death of this patient nine months afterwards a thick laminated membrane was, as might well have been expected, found in the subdural space. It is worthy of note that our patient had a fall with traumatism of the head three months before his urgent symptoms came on. In a few cases it is clear from the history that the hæmorrhage occurred independently of traumatism; but it is not always possible to determine in cases where there is a history of a fall whether the fall was the cause of the hæmorrhage or the hæmorrhage the cause of the fall. It is well known that blows on the head do produce serious hæmorrhages within the skull and yet the symptoms are delayed for hours or days. Whether, however, the hæmorrhage is due to traumatism or not hæmatoma will in any case result.

It was shown many years ago by the late Mr. Morrant Baker,[1] that a hæmatoma may slowly increase in size by constant slight fresh hæmorrhages into it, a condition which

[1] St. Bartholomew's Hospital Reports, vol. i., 1865.

is well known in surgery in the history of an ordinary hæmatocele. Hæmatoma in the arachnoid cavity therefore may, and probably in some cases does, behave exactly as does a hæmatoma in the tunica vaginalis testis.

There has been much discussion by various authorities as to the nature and cause of the fibrous cyst walls which are formed, but it does not appear to us that they present much difficulty. A growing hæmatoma contains, besides fresh blood, blood-clot; the latter, being a dead tissue, constitutes a foreign body, and like a bullet or any other foreign body, it becomes surrounded by a fibrous areolar capsule. The reason why these arachnoid hæmatomata are so relatively common in general paralytics is apparently because their vessels suffer from a syphilitic process.

It had been proposed to send our patient to a lunatic asylum and it is curious to conjecture what would have happened had this fate overtaken him. He might well have passed muster, at least at first, as a general paralytic, but it is hardly likely that he would have been duly numbered and labeled as such.

FIG. 1.

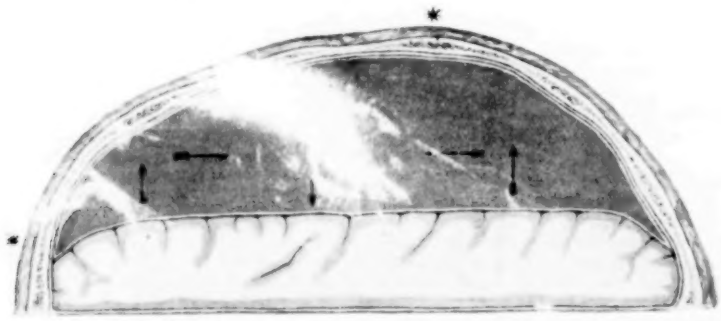


Diagram of a horizontal section of the head to show the position of the "cyst," the compression of the cerebral hemisphere, and the occurrence of *expansile pulsation in the tumour*. Half natural size. The size of the drawing corresponds to the cast of the patient's head which was made when he was convalescent. The marks * * show the extent of the opening in the skull. The tumour being fluid the pulsations of the brain were transmitted in every direction; hence when the finger and thumb grasped the centre of the tumour (see arrows in the centre of the cyst) they were separated by an expansile pulsation comparable to that which obtains in aneurysm.

FIG. 2.

Reproduction of a photograph of a coloured drawing of the outer surface of the tumour (hæmatoma of the arachnoid cavity) which is in the Museum of the Royal College of Surgeons of England (3837 A). ⅓ths natural size (M. H. Lapidge). A, Anterior border of the cyst. The following description of the tumour is by Mr. S. G. Shattock. A somewhat flattened, irregularly oval cyst, about six inches in length and over three inches in extreme breadth, which was removed by operation from the subdural space. The external surface is almost everywhere smooth, but here and there is slightly roughened at spots where it has been detached through slender adhesions. The opposite aspect which lay against the cerebral hemisphere is less smooth and for the most part is covered with a thin layer of lymph or decolourised blood-clot, in which the impress of the subjacent cerebral vessels is particularly obvious. No separable membrane can be demonstrated on either aspect of the cyst which appears thus to have lain between the dura mater and arachnoid and to be altogether of adventitious origin. A section has been made to display the contents after the hardening of the specimen in formol. The divided surface of the solidified contents (which in the recent state were felt to be fluid) shows a colourless translucent serum in which there lies a deep red clot distributed without any trace of lamination or other definite arrangement. Microscopic sections made from the outer aspect of the cyst or subdural hæmatoma exhibit a well-defined wall of uniform thickness and constructed of lamellar connective tissue, in the clefts of which extravasated blood occurs in all grades of change. Vessels are here and there encountered. Although clot adheres to the inner surface this is sharply demarcated and is not undergoing organised incorporation with the wall of the cyst.

At the second stage of the operation when the cyst was exposed the expansile pulsation (the nature of which was not at the moment obvious but which is explained by the accompanying illustration—Fig. 1) suggested the possibility of an aneurysm. It was therefore decided to enlarge the opening in the bone and to remove the tumour on a subsequent occasion.

Such large blood cysts in the arachnoid space must be rare. The museums which we have inspected contain no such large cyst, but one is figured by Hamilton.[2] There can be no doubt that the condition is not due to inflammation but is a simple hæmorrhage.

A CASE OF ECTOPIA CORDIS.

BY SIR ISAMBARD OWEN, M.A., M.D. CANTAB., F.R.C.P. LOND.,

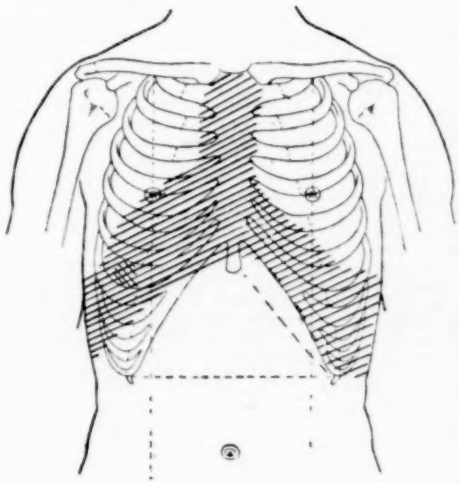
PHYSICIAN TO, AND LECTURER ON THE PRINCIPLES AND PRACTICE OF PHYSIC AT, ST. GEORGE'S HOSPITAL;

AND

MORRIS J. WILLIAMS, L.S.A.

THE patient was a girl, aged 14 years. She had suffered from an attack of rheumatic fever in 1901 but was not then attended by a medical man. In 1903 she came under Mr. Williams's care in a fresh attack of rheumatic fever, followed by anasarca, the urine having been albuminous throughout. She was seen by Sir Isambard Owen at St. George's Hospital in consultation with Mr. Williams on May 22nd. The following physical signs were then present in the thorax. The area of cardiac dulness was as indicated by the shading in Fig. 1 which is copied from a diagram made at the time.

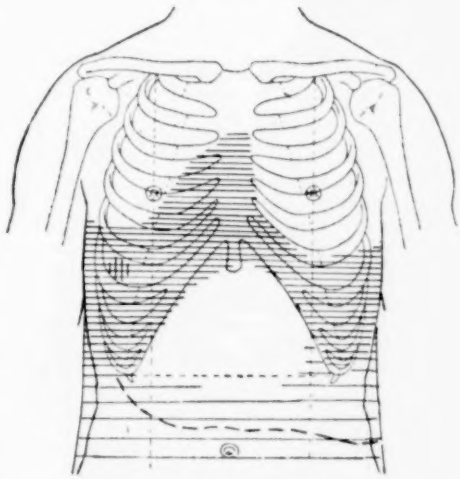
FIG. 1.



The apex beat of the heart was, as shown on the figure by cross-hatching, in the sixth right interspace, nearly an inch to the right of the nipple line. No impulse was felt elsewhere. A systolic murmur was heard over all the dull area, culminating at the apex beat; it was well conducted into the right axilla and was well heard at the angle of the right scapula but not at all at that of the left. A shorter and rougher double murmur culminated in the second right space close to the sternum (the normal "aortic area"); it was conducted down the sternum and was well heard at the lower part of its left margin, but it was not heard in the neck. The murmurs were but faintly heard over the normal præcordial area to the left of the sternum, except at its sternal margin. No murmur was heard in the abdomen. The pulse presented no special feature. As shown in the illustration, what was presumed to be liver dulness was found on the left side and what appeared to be splenic dulness was found on the right side. The edge of the liver was doubtfully felt in the left hypochondrium in the position of the broken line in the illustration. The bases of the lungs were not very resonant but there was no abnormality of the breath sounds or any other indication of past or present disease of the lung or the pleura. There was a little ascites present but not enough to interfere with the action of the diaphragm. Nothing else remarkable was noticed in the patient and the malposition of the heart was verified by an x-ray examination. A skiagram was taken by Mr. Frank Addyman, superintendent of the x-ray department of the hospital; it represented the thorax viewed from the back. The position of the heart, mainly to the right of the middle line, and the pointing of the apex to the right were clearly shown. The transparency of the heart to the rays, Mr. Addyman found, was unusually great, whilst that of the lungs was less than usual.

The patient was seen again by Sir Isambard Owen on June 22nd in consultation with Mr. Williams. The areas of dulness and the position of the apical impulse on this occasion were as indicated by the shading in Fig. 2,

FIG. 2.



similarly copied from a diagram taken at the time. The liver was now greatly enlarged, its edge being plainly palpable in the position of the broken line in the figure. The cardiac impulse was felt over the entire area of cardiac dulness, the sternal portion excepted, and not at all to the left of the sternum. The localisation and extension of the murmurs were as on the previous occasion, with the exception that the basic point of culmination was in the third right space instead of in the second. The bases of the lungs were dull and the breath and voice sounds were deficient over the dull area. Ascites was still present.

The special interest of the case, as a living example of a rather rare condition, was due to the presence of valve lesions. The consequent enlargement of the heart enabled its abnormal position and direction to be the more obviously traced, while the localisation and conduction of the murmurs afforded a clue to the situation and direction of the orifices, at least of the aortic side. There appeared to be almost, if not quite, complete dexiocardia, but the course of the aorta was left in doubt, as the basic murmurs, which were very unlikely to be of pulmonary origin, culminated to the right and not to the left of the sternum. The results of palpation and percussion appeared to indicate a reversal of the position of the liver and the spleen. The x rays failed to show the localisation of these organs either on the screen or on the skiagram. As far as can be made out the health and comfort of the patient were in no way affected by the malposition. The valve lesions, it may with probability be assumed, originated in rheumatic endocarditis in 1901 or in the present year.

[2] Text-book of Pathology, vol. ii., part 2, p. 604.

INTUSSUSCEPTION OF THE VERMIFORM APPENDIX.

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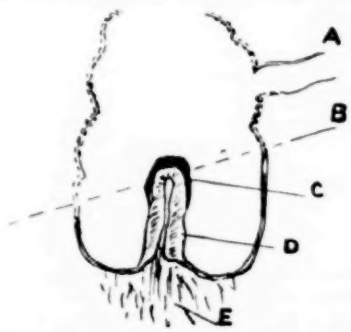
INTUSSUSCEPTION of the vermiform appendix is a rare and interesting condition. The examples found in medical literature show that the affection presents considerable variability as regards the manner in which the appendix is invaginated. In most cases the pathology is obscure, as it is in the commoner varieties of intussusception, but in some, as in the case here described, there is evidence pointing to its causation. The age incidence in this condition seems to be rather later than in the more usual forms and a tendency towards chronicity marks most cases. The latter is explained by the fact that acute obstruction is not a necessary concomitant and sloughing and gangrene of the intussusceptum resulting from strangulation of the mesentery are not so early produced. The case described was under the care of Mr. H. J. Waring, to whom I am indebted for permission to publish it. It presents some of the features common to other reported cases but differs markedly in other respects.

A boy, aged nine years, was admitted into St. Bartholomew's Hospital on April 16th, 1903, suffering from abdominal pain. The following history was ascertained. About a month previously he received a blow on the abdomen resulting from his brother falling against him. He vomited after the accident and was kept in bed for four days. On being allowed to get up he was much troubled by constipation and for a week before admission he was given castor oil daily. The abdominal pain continued on and off. On the 16th the patient vomited and was brought to the hospital by his parents and was admitted. The following note describes his condition at that time: "The patient is a bright-looking boy, with high colour; temperature 99·2°, pulse 100, respiration 20; he complains of pain in the 'stomach.'" Both knees were kept drawn up, the abdomen was held rigid and moved little on respiration, and the right rectus particularly stood out. No abnormal dulness was present but there were some tenderness and an indefinite resistance in the right iliac fossa. Rectal examination was negative and nothing else abnormal was discovered. The case was thought to be probably one of subacute appendicitis or some tuberculous mischief. No fresh symptoms appeared and the child steadily improved and was discharged on April 29th quite well except for some thickening in the right iliac fossa.

For a week after his discharge the boy continued well; no pain was complained of and his bowels kept regular. On May 6th at midday the patient was seized with acute abdominal pain, followed by vomiting. He was slightly better that afternoon but towards evening the pain became continuous and the vomiting frequent. He was brought to the hospital and was admitted. The patient was not at all collapsed; his pulse was 140, his temperature was 100° F., and his respirations were 20. The tongue was dry and furred, the cheeks were flushed, and there was no evidence of much pain. On inspection the abdomen was seen to be held slightly rigid and an oval swelling was apparent just above the umbilicus, moving readily on respiration. On further examination the tumour was found to be tender and could be traced towards the right iliac fossa; it was firm and freely moveable. Rectal examination was negative. Considering the absence of shock and vomiting and the fair mobility of the abdomen it was thought that the lump might be accounted for by commencing thickening of the great omentum forming part of a tuberculous peritonitis. But the physical examination gave much more the idea that the tumour was due to an intussusception, and at 10 P.M. this view was strengthened by the passage of two drachms of bright blood by the rectum. An operation was decided upon and after waiting for the parents' consent was performed at 7 A.M.

An incision three and a half inches long was made over the right rectus above the umbilicus and the abdomen was opened. An intussusception was then discovered lying obliquely at the level of the umbilicus. The apex could be felt as a small, hard mass. The great bulk of the intussusception, consisting of ileum, was easily reduced until the cæcum was reached. It was then found that the hard mass representing the apex already felt lay inside the cæcum. Its base was marked by a dimple on the internal aspect of the cæcum surrounded by adhesions. On further investigation this was found to be a completely invaginated appendix the mesentery of which was drawn into the dimpled area. All attempts to reduce this were found to be futile and Mr. Waring determined to remove it together with the caput cæci. The peritoneal and muscular coats were incised in the line shown in the diagram and a silk ligature was



A, Ileum. B, Line of section. C, Commencing gangrene. D, Intussusceptet appendix. E, Mesentery and adhesions. The part below the line of section is a diagram of the actual specimen removed.

introduced into the groove and tightened. This was found still to include the tip of the appendix, so the incision was carried into the lumen of the bowel and the caput cæci was removed with the intussuscepted appendix. The opening in the cæcum was then carefully closed by tiers of suture, the cut edge being turned in, and the abdomen was closed. Recovery from the shock of the operation was satisfactory and a few hours after the patient was fed by the mouth, half an ounce of peptonised milk and ten minims of brandy being given at first and this amount gradually increased. Towards night there was some collapse which was combated by an injection of two minims of strychnine and half a pint of hot saline rectal injection. The face was still pinched and anxious but the pulse had fallen from 180 to 140. In spite of a recurring tendency towards collapse during the following two nights the patient did quite well. The bowels were well opened by enema on the fourth day and his recovery was rapid and uneventful.

From several points of view the case is of great interest. It is one further example of a rare condition and is, as far as I know, unique in that the appendix itself formed the apex of the intussusception. I interpret the sequence of events in the child's illness as follows. The intussusception primarily resulted from the blow received a month before admission and was in the first place only appendiculo-cæcal. This occurred as a result of reversed peristalsis, either immediately or a few days later, following on the inflammation round the appendix, which must have been marked judging by the adhesions found at the operation. This view of a traumatic causation is strongly supported by the sudden onset of the symptoms after the accident. That the intussusception was at first only appendiculo-cæcal is proved by the fact that only some resistance could be felt over the right iliac fossa when the child was first admitted. It must have been the irritation of this polypoidal invagination that led to the later and more extensive intussusception. This sequence of events is supported by other reported cases in which, however, an ileo-cæcal or ileo-colic intussusception had resulted. It would be of great interest to know how the appendix is able in such cases to invaginate itself. The production of an intussusception in a piece of ordinary bowel is a problem in pathology often hard to explain. Yet here we have a tube with a large lumen and thin walls. The almost potential lumen and thick walls in the case of the appendix appear to one at first sight as almost absolute safeguards against such an occurrence. A congenital dimpling of the tip of the appendix may be the starting point. It is yet another example of the vagaries which unstriped muscles in the body occasionally indulge in.

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A CASE OF TRAUMATIC ANEURYSM OF THE GLUTEAL ARTERY TREATED BY INCISION OF THE SAC AND LIGATURE OF THE ARTERY DURING INTRAPERITONEAL COMPRESSION OF THE INTERNAL ILIAC.

BY ALAN H. MUIR, M.B., CH.B. GLASG.

A MAN, aged 28 years, was admitted into Swansea Hospital, under the care of Mr. W. F. Brook, on Jan. 7th, 1903, as a case of abscess of the hip following an injury received four months previously. His history was as follows. On Sept. 6th, 1902, whilst riding on a load of pit timber one of the supporting pieces gave way. He was thrown off and struck on the right buttock and other places by one of the falling pieces which measured nine feet. He was carried home. A swelling of the size of a hen's egg immediately developed over the right buttock. The hip and thigh were much discoloured and he suffered from pain of a spasmodic character extending from the hip to the thigh. He was confined to bed for five weeks, during which time the tumour gradually increased in size. On getting up he found walking difficult and painful. Since then the swelling had become larger and tenser and the pain in the thigh and the calf had assumed a throbbing character. The patient was pale and had an anxious expression. His temperature was 98·6° F. and his pulse was good. His condition on admission was as follows. There was a hemispherical tumour over the right dorsum ilii, limited above by the iliac crest and below by a transverse line drawn from the tip of the coccyx. The inner margin was one and five-eighths of an inch from the coccyx and higher up one and a half inches from the sacral spines. To the outer side it extended to the anterior margin of the great trochanter. From the highest to the lowest point it measured nine and a half inches, the corresponding measurement on the opposite side being seven and a half inches. From the right anterior superior spine to the tip of the coccyx measured 13⅜ inches, as against 10 inches on the opposite side. The skin over the swelling was glistening and slightly numb but otherwise normal. The tumour was circumscribed and on palpation was tender, non-fluctuant, and immoveable in all directions and incompressible. There was no visible pulsation, but when a stethoscope was placed on the tumour pulsation could be made out. This pulsation was tangible and expansile in character and of the same rhythm as the radial pulse. There was a systolic bruit. There was nothing to be made out on rectal examination. The hip was semi-flexed and slightly everted, the movements were limited and painful, and the thigh and calf muscles were flabby and slightly atrophied. There was no interference with the circulation in the leg. There were pain and numbness in the right leg extending to the inner side of the foot. A diagnosis was made of aneurysm of the gluteal artery. The patient was put on five grains of iodide of potassium and a modified Tuffnell's diet, with absolute rest in bed and occasional doses of opium to relieve pain. The iodide of potassium was gradually increased until he was taking 17 grains three times a day. During the first and second weeks after admission the swelling increased very slightly in size and the skin became tenser, more shiny, and exhibited a bruised appearance. The pulsation was very much less marked and the bruit was less distinct. The diet was more restricted. During the second and third weeks the bruit disappeared altogether and the pulsation became very difficult and finally impossible to detect. At the same time the swelling became softer and the pain less severe and it began to seem as if operation would be unnecessary. Further shrinking did not take place; indeed, at times the swelling seemed to increase in size, accompanied by exacerbations of pain, and the skin assumed a bruised hue. On Feb. 9th the patient was put on calcium chloride, 20 grains every four hours, in addition to the iodide of potassium. On the 12th an undoubted increase in size and of symptoms took place and operation was decided on.

On Feb. 14th, under gas and ether, the abdomen was opened through a three-inch skin incision over the middle of the right rectus muscle below the level of the umbilicus. The sheath was incised in the line of the skin incision, the muscle was drawn towards the middle line, and the fascia and peritoneum were incised opposite the superficial incision sufficiently to admit of the introduction of two fingers. The internal iliac artery was then found and controlled by the two fingers. The patient having been rolled on to his side an incision from five to six inches in length was made in the line of the gluteal artery. The sac was opened and two pints of recent clot resembling black-currant jelly were turned out together with about a handful of fibrinous clot and the cavity was mopped out dry. Relaxation of the compression showed the blood spurting from a large wound in the side of the artery. The bleeding point was secured and a celluloid ligature was applied. On further examination a gaping, fissured fracture, into which the finger tip could be introduced, was found extending from the apex of the sciatic notch to the crest of the ilium and showing no signs of

FIG. 1.

Condition before the operation.

repair. The aneurysmal contents had so laid bare the notch and displaced the pyriformis muscle and gluteal artery downwards that another ligature could be applied well within the pelvis at the point of emergence of the artery from the pelvic fascia. The cavity was then washed out with normal saline solution and closed by figure-of 8 sutures of fishing gut, a drainage-tube was put in, and firm pressure was applied by means of pads. The abdominal wall was sewn up in three layers by buried reindeer tendon and horse-hair superficially.

The patient stood the operation well. On the 15th he was dressed, but the drainage tube was still kept in owing to oozing of a bloody grumous fluid. On the 22nd the stitches were taken out. The wounds had healed well, but the tube was still retained as there was a little blood-stained semi-purulent discharge from the huge cavity left. For two or three evenings the temperature rose to 100°. The patient felt immensely better as a result of the operation. The pain had entirely gone. By March 7th no dressing was needed and he was on full diet with tonics. On the 24th he got up on the couch and gradually walked about with assistance. On the 31st he was discharged, but was advised to use crutches for a little time. Then the patient was entirely free from

pain, stouter, and looked and felt better. Figs. 1 and 2 show very well the condition before and after the operation.

Remarks by Mr. BROOK.—Gluteal aneurysm is very rare, but the interest of this case is further enhanced by the presence of the fractured ilium, produced, of course, by the same blow which ruptured the artery. The absence of repair was remarkable and the appearance and impression it gave to the touch were those of a fracture of a few hours. This could only be accounted for by the continual swirl of the blood at very high pressure over the fractured surfaces. No doubt union had taken place by buttress formation on the inner surface of the bone. Apart from rest and dietary the choice of treatment of gluteal aneurysm lies between: (1) the introduction of needles with or without electrolysis; (2) ligature of the internal iliac artery; (3) the operation of Antyllus; and (4) the operation of Antyllus aided by intra-abdominal compression of the internal iliac. It was decided

FIG. 2.

Condition after the operation.

to give treatment by rest, dietary, and iodide of potassium a trial because the tumour was very firm, incompressible, and non-fluctuant and the pulsation not marked, giving the impression that the cavity was nearly obliterated by clot. From the disappearance of the pulsation and bruit it looked at first as though this would be successful. But although the circulation through the distal part of the artery evidently became arrested the subsequent increase in size and the altered appearance of the skin showed that the latter would undoubtedly slough unless further measures were promptly adopted. The danger of setting up suppuration in the sac by the use of needles seemed likely to be accentuated by the devitalised condition of the skin and subcutaneous tissues and the choice of treatment came to lie between ligature of the internal iliac and the old operation of Antyllus, aided or not by intraperitoneal compression of the artery. The simplicity and safety of the procedure adopted led me to select it and its ease of performance justified my anticipations in this respect. Both Syme and at the beginning of the last century Bell opened up the sac in gluteal aneurysm and successfully tied the artery without the assistance of any compression, but, as Jacobson[1] points out, there is always a risk of fatal hæmorrhage from the artery having retracted into the pelvis. The limited suppuration which occurred was due to the impossibility of obliterating the cavity after operation by means of compressing its walls, being largely composed of muscle tissue rigid with infiltration. The wound was soundly healed before the patient left the hospital, neither of the celluloid ligatures having appeared. The credit of having been the first to devise and to perform this operation belongs to my friend Mr. W. H. Battle who in 1898 published a case[2] which he successfully treated in this way at the Royal Free Hospital. So far as I know this is the only case on record. I take this opportunity of acknowledging my indebtedness to my colleague, Mr. J. K. Couch, who kindly assisted by compressing the artery, and also to Mr. F. P. Edwards, assistant house surgeon, who, in the temporary absence of Dr. Muir, assisted at the operation and for the first few days helped in the conduct of the after-treatment.

[1] Jacobson and Stewart: Operative Surgery, fourth edition, vol. ii., p. 26.

THE RELATION OF THE THYMUS GLAND TO MARASMUS.[3]

BY JOHN RUHRÄH, M.D.,

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THE pathology of infant life has been to a certain extent a very much neglected field and I feel positive that a rich harvest awaits the workers who will be painstaking enough to study both in the ward and in the dead-house. In most places the necropsies on infants are hastily done and the record frequently made in the report, "Nothing abnormal noted." As a matter of actual fact, regarding many organs during infancy there are few who know normal from abnormal or who can tell from a macroscopical examination what the microscope will reveal. There are, I am sure, clinical entities with well-marked lesions which are waiting to be described. As is known, one frequently sees an infant sicken and die without diagnosis during life and no adequate explanation after the necropsy has been made. Many of these cases come under the head of marasmus and it was with the intention of trying to throw some light on this interesting condition that especial care was taken with our necropsies on infants. The following brief report, which I hope will stimulate others to undertake similar studies, is based on about 85 necropsies. The first 23 have been carefully tabulated by my colleagues, Dr. Stokes and Dr. Rohrer and myself, and while the remainder have not been tabulated they have been studied and the conclusions reached from the first 23 remain unchanged.

It is a curious fact that the most characteristic lesion of marasmus, excepting the wasting of fat and muscles, while known for many years, is not mentioned in any of the text-books on the diseases of children. This lesion is a wasting of the thymus gland which will be described later. Parrot, in 1877, called attention to the disease which he called athrepsia, the so-called wasting disease of infants, known also as marasmus, simple atrophy, and atrophia primitiva infantum. The term inanition, also used, should be restricted to those acute cases of starvation which have a typical course and characteristic symptoms. There are two conditions in which we see atrophy in infants—the primary cases, where the cause is as yet unknown, and the secondary cases following definite pathological conditions. The dividing line cannot at this time be definitely drawn. All cases occurring in the course of the easily recognised diseases may at once be placed in the group of secondary cases—those following tuberculosis or syphilis, for example. Clinically most cases are seen in infants which have had improper food and care. Some authors would also place these in the list of secondary cases. They would place under the head of primary atrophies only those where the assimilation was at fault or, in other words, those cases receiving proper care and a physiologically correct diet. This is, we think, a division practically useless; and for the present until we have definite information the cases should be divided, on a pathological basis, into those were there are lesions of definite diseases and those where there are no special and constant lesions except the wasting of the

[2] Brit. Med. Jour., 1898, vol. ii., p. 1415.

[3] A paper read before the British Medical Association at Swansea on July 29th, 1903.

muscles and the body fat, and, as we shall see, of the thymus gland as well.

The more important contributions to the pathology of the condition are as follows. Baginsky thought that the disease was due to an atrophy of the mucous membrane of the intestine and that it was owing to this condition that absorption was intefered with and hence the atrophy. He estimated the amount of nitrogen ingested and that excreted and found that the amount of nitrogen absorbed in these atrophic infants was 50 per cent. below the normal. Similar anatomical studies were made by Fenwick. Since that time many investigators have disproved this anatomical statement. In the majority of cases the changes observed were due to the stretching of the intestinal wall by distension with intestinal gases and also partly in many cases due to post-mortem changes. Bendix found that Baginsky's estimate concerning the nitrogen was exaggerated; and Heubner and Rubner, as the result of experiments carried out in a somewhat different manner, formulated the idea that there was sufficient food taken and absorbed but that the trouble was due to the auto-intoxication from the decomposition of food in the intestinal tract. Czerny is of the same opinion but holds that the intoxication is of an acid nature. The French writers regard the condition as an infection or an intoxication due to a subacute or a chronic infection of the intestinal tract. Marfan has more recently stated that the condition is due to a lack of or a lessened activity of the nutritive ferments, this in turn being due to the intestinal infection. We may safely assert, I think, that the trouble is not due to the amount of food ingested or to the amount absorbed from the intestinal tract, but that it is due to the mal-assimilation of the food material in the body. Whether the thymus gland has anything to do with assimilation or not we are not prepared to say, but it is certain that the thymus gland bears a direct relation to the state of the nutrition of the body. It increases in size until about the second year, when it remains stationary, growing relatively smaller when compared to the size of the growing body. At puberty, when the body growth is largely over, it begins to atrophy and at about 25 years of age, when the body has attained its full growth, it is gradually replaced by fatty and connective tissue. Herard, at a subsequent date Friedleben, and more recently Mettenheimer, have pointed out the relation of the size of the thymus to the state of nutrition of the body. Of this this there can be no doubt, as it rests on a firm basis of trustworthy observation.

The function of the thymus is as yet unknown. The gland weighs about 12 grammes at birth. Histologically it consists of a connective tissue framework holding up a parenchyma consisting of a cortex and medulla which are similar in structure, but the cortex contains normally many more cells than the medulla. The parenchyma consists of a network of endothelial cells resembling the reticular spaces of the lymphatic structures. This space is filled with lymphoid cells and also with a few neutrophilic and eosinophilic leucocytes and with a few giant cells. Here and there in the structure are little islands of epithelial cells with a peculiar concentric arrangement not unlike that found in the concentric bodies of an epithelium. These are the so-called Hassall bodies or corpuscles. They are the remains of the epithelium which forms the principal part of the thymus gland during embryological development.

Our studies cover 18 cases of marasmus. The average weight of the gland was 2·2 grammes. Excepting the terminal infection the atrophy of the thymus was the only lesion found in any of the necropsies. The changes in the gland consisted in a great atrophy. Histologically the fibrous capsule of the gland is thicker than normal and the trabeculæ are also greatly thickened and the increased interlobular tissue frequently cuts the lobules up into irregular masses. Sometimes there is more fibrous tissue present than there is lymphoid structure. In well-marked cases there is more reticular tissue present than lymphocytes and leucocytes. In most of the cases there was an increase in size and a hyaline degeneration of the Hassall bodies. The state of the nutrition of infants may be estimated by a microscopical examination of the thymus. In those of normal infants the structure of the thymus is unaltered and the differentiation between cortex and medulla is plainly visible. In moderate atrophy the cortex and medulla are not easily distinguished, while in severe atrophies the changes mentioned above are plainly seen. In secondary atrophy the change is one of degree and we found in our cases the average weight of the thymus to be 3·41 grammes. We tried the administration of the thymus gland tablets in cases of marasmus and as far as could be determined there were no changes produced by the use of the gland in the dried form. We arrived at the following conclusions: (1) atrophy of the thymus gland is always found in cases of infantile atrophy; (2) the condition of the thymus is an index of the general nutrition of the infant; and (3) the state of the nutrition in infants may be estimated by a microscopic examination of the thymus at the necropsy.

A SERIES OF CASES OF PERFORATING GASTRIC AND DUODENAL ULCERS.

BY B. G. A. MOYNIHAN, M.S. LOND., F.R.C.S. ENG.,
ASSISTANT SURGEON TO THE LEEDS GENERAL INFIRMARY.

THE perforation of a gastric or duodenal ulcer is one of the most serious and most overwhelming catastrophes that can befall a human being. The onset of the symptoms is sudden, the course is rapid, and unless surgical measures are adopted early the disease hastens to a fatal ending in almost every instance. Perforation of the stomach is usually described as being of two varieties, acute and chronic, but there is an intermediate class of cases, not embraced by either of these terms, which is best described as subacute. In acute perforation the ulcer gives way suddenly and completely. A larger or smaller hole results and through this the stomach contents are free to escape at once into the general cavity of the peritoneum. In subacute perforation the ulcer probably gives way almost as quickly as in the acute form, but owing to the small size of the ulcer, or to the emptiness of the stomach, or to the instant plugging of the opening by an omental flap or tag, or to the speedy formation of lymph which forms, as it were, a cork or lid for the ulcer, the escape of fluid from the stomach is small in quantity and the damage inflicted thereby is less considerable. The symptoms at their onset may be as grave as those in acute perforation, but on opening the abdomen the ulcer may be seen to be plugged and no further escape of fluid is occurring. In the subacute form of perforation I have found that there is always a complaint of greater discomfort for several days preceding the rupture. Vague general or localised pains have been felt in the abdomen, or a sharp spasm or "stitch" when the patient turned quickly or attempted to laugh. One girl, a housemaid, felt the pain down her left side especially when reaching up to her work; another said that it hurt her to bend as her side felt stiff. These premonitory symptoms are important and if recognised they should enable us to take measures to prevent the occurrence of perforation. They doubtless have their origin in a localised peritonitis and the stiffness is due to the unconscious protection of an inflamed area by a muscular splint. In chronic perforation the ulcer has slowly eaten its way through the coats of the stomach and a protective peritonitis has had time to develop at the base. The escape of stomach contents is, therefore, merely local; barriers of lymph confine the fluid to a restricted area and a perigastric abscess may form. A chronic perforation occurs more frequently on the posterior surface of the stomach and the epigastric abscess occasioned thereby is recognised as "subphrenic." The acute and subacute forms of perforating ulcer are more common on the anterior surface.

There can be no doubt that recovery by medicinal treatment alone is possible both in the acute and in the subacute forms of perforation. I have had two cases under my care in which a diagnosis of perforation had been made by competent medical men. In both an operation was impossible, as no skilled help was available until the urgency of the symptoms seemed to have passed off. When I operated many months later the evidences of peritonitis completely surrounding the stomach were undeniable. Though patients may recover their recovery cannot be urged as a reason for delay in withholding surgical help in all cases. For the possibility of spontaneous recovery, though not denied, is yet so remote as to make it imperative to adopt operative treatment at the earliest possible moment. The risk of operation is definite, the hazard of delay is immeasurable. There are times when the diagnosis may be difficult. If morphine has been administered to still the intolerable pain the patient's condition becomes placid and comfortable. It may be almost impossible then to recognise the extreme urgency of the case. In such

circumstances I have, however, placed great reliance upon a continued hardness and rigidity of the abdominal muscles. Even when the patient expresses herself as free from pain, when the aspect has become natural, and when the pulse has returned to the normal, the abdominal rigidity remains. In Case 9, that of a girl, aged 17 years, upon whom I operated for a perforated duodenal ulcer, the medical man who sent her to the infirmary had diagnosed a perforated gastric ulcer and had told the patient and her parents that immediate operation alone could save her life. Having obtained consent to operation he despatched the girl to the infirmary and gave a hypodermic injection of a quarter of a grain of morphine to lessen the distress of the journey. When I saw her shortly after her arrival she looked in perfect health, she had no suffering, and her pulse and respirations were normal. The abdomen, though not distended, was absolutely rigid and immobile and I did not hesitate to operate at once. In any uncertain case I should incline to operation rather than to indefinite postponement to solve the diagnosis.

I have seen a difficulty in diagnosis arise and I know of three cases in which negative exploration had been performed when the patient was a woman at the commencement of a menstrual period. From some unexplained and indeterminate cause a sharp attack of abdominal pain, followed by vomiting, distension, prostration, and collapse, had occurred in all and had caused a confusion in the diagnosis. In the case under my own observation a history of previous similar, though less severe, attacks at the menstrual epoch and the absence of any marked abdominal stiffness or tenderness, though the abdomen was obviously distended, enabled me to negative the question of perforating ulcer of the stomach. A difficulty may also arise in the diagnosis of a perforated duodenal ulcer. In a paper published by me[1] I drew attention to the fact that in 18 cases out of a total of 49 recorded a diagnosis of appendicitis had been made and an operation had been undertaken for that condition. The symptoms and signs in all these instances had been limited to the right iliac region or had been more accentuated there. This is due to the fact that, owing to a hillock in the transverse mesocolon under the pyloric end of the stomach, extravasated fluids are directed downwards and to the right into the right renal pouch and thence to the right iliac fossa.

The operation for perforated ulcer should be conducted speedily and all means adopted to save the patient from shock. The excision of the ulcer is not necessary. My practice is to close the ulcer at once by a single catgut suture taken through from side to side so as to prevent any further leakage during the application of the sutures. I apply two continuous sutures of Pagenstecher thread which infold the ulcer and a portion of healthy stomach around it. After the stitches are completed the cleansing of the peritoneum is begun. If there is much soiling a free flushing of the cavity is necessary; if the operation is done within ten or 12 hours a gentle wiping of the surrounding area with wet swabs will suffice. Drainage, as a rule, is not necessary except in the late cases. When adopted it should be free, a split tube and a gauze wick being placed in the original incision and in a second suprapubic opening. I have preferred the enlarging of the original incision and free flushing through that to the method of multiple incisions advocated by Finney. One point I think requires emphasis; it is the multiplicity of perforating ulcers. As soon as the ulcer first discovered is sutured a rapid survey of the whole stomach is desirable in order that any other ulcer may be laid bare. An examination of a large number of recorded cases has shown that double perforation occurs in no less than 20 per cent. In the majority the second ulcer was on the posterior surface at a point exactly apposed to the first. In duodenal ulceration the perforation may be very large; the ulcer seems to have fallen out bodily. When the gap is stitched up a narrowing of the calibre of the duodenum results and it may therefore be necessary to give an alternative route from the stomach by performing gastro-enterostomy.

The following is my record of cases; there are 12 cases—six recoveries and six deaths.

CASE 1.—A woman, aged 39 years, was admitted on April 30th, 1897, with a history of acute onset of severe abdominal pain, chiefly in the epigastric region. There was faintness followed in about half an hour by vomiting; there was no hæmatemesis. The abdomen gradually became distended and the pulse gradually became quicker and feebler. The abdomen was opened and a very small gastric ulcer near the lesser curvature was found to have perforated. There was free effusion and some curdled milk was seen in the peritoneum. Suture of the ulcer, lavage, and drainage were performed. Recovery ensued.

CASE 2.—The patient, a woman, aged 27 years, was seen on May 22nd, 1897. During the previous year she was treated by Dr. W. E. Bennett for gastric ulcer. Since then she had constantly had dyspepsia, pain in the back and epigastrium, and occasional vomiting, but not recently, of blood. On May 22nd, at 2.30 A.M., she was suddenly roused from sleep by intense epigastric pain, she felt faint, and vomited. The collapse continued and soon distension and tenderness occurred; the vomiting was persistent. The abdomen was generally distended, the upper part especially; the pulse was very tense and only just perceptible; she had cold, clammy hands and livid skin. Operation was performed at 11.25 P.M. There was a large perforation half inch in diameter just below the lesser curvature nearer the cardia. Death ensued.

CASE 3.—A woman, aged 20 years, was seen on Nov. 16th, 1898. She had been under the care of Dr. T. Johnstone some months previously for indigestion. With dieting, &c., the symptoms abated. She had had no discomfort recently. On the 18th, at 5.30 P.M., while at tea, she had sudden pain, overwhelming, localised beneath the ribs on the left side, "as though a knife were run in." The abdomen gradually became distended. The patient remained collapsed for several hours but improved after morphine. There was no liver dulness. The tenderness was over the appendix region chiefly. Operation was performed on Nov. 20th at 12 noon. There was a large ulcer, easily admitting the middle finger, about three inches from the cardia on the anterior surface. There were general peritonitis and a large collection of thick turbid fluid and lymph. Death occurred in 23½ hours.

CASE 4.—The patient, a man, aged 44 years, was seen on April 26th, 1900. Symptoms had been present for 18 months; the chief of them was pain two, three, or four hours after food. Blood had been observed when the patient vomited; vomiting was frequent but irregular. There was no melæna. On the 25th, while in the infirmary, the man became suddenly worse; pain came on acutely in the whole abdomen. Distension and rigidity were soon observed. Collapse was pronounced. The respirations were 28 and the pulse was 128. A diagnosis of perforating ulcer was made and the abdomen was opened. The ulcer was found at the beginning or the second part of the duodenum; its diameter was about three-quarters of an inch. After stitching the ulcer up the gut seemed narrowed to at least half its diameter. A gastro-enterostomy, with the aid of a Murphy's button, was therefore performed. The patient never rallied from his collapse and death ensued.

CASE 5.—The patient, a woman, aged 28 years, was seen on April 12th, 1901. She had had symptoms of indigestion for eight years. On April 11th she was suddenly seized with acute abdominal pain about three hours after breakfast. On admission to the infirmary she was found to be in very acute pain, the abdomen, especially in the upper half, being much distended and very rigid. The epigastric region was excessively tender. An ulcer equal in size to the end of a lead-pencil was found near the lesser curvature towards the cardia. The stitches held imperfectly until taken very wide of the ulcer. To give security an omental flap was stitched over the ulcer. The early course was satisfactory, but later the temperature ran up and a subphrenic abscess and multiple suppuration of the abdomen resulted and the patient died on May 7th.

CASE 6.—The patient, a man, aged 23 years, was seen on May 24th, 1901. He had had symptoms of gastric ulcer for several months. He was a policeman and had recently been on night duty; frequently he had vomited during the night. On the morning of May 23rd he had a sudden acute attack of pain and vomiting when going on duty. He returned to bed, felt ill and cold all day, and at night first sent for a medical man. The abdomen was then distended, rigid, and tender; the pulse was 124, thin, and feeble. An ulcer on the anterior surface near the pylorus had perforated. There were masses of lymph between the liver and the stomach. Fluid was found everywhere in the peritoneum. The ulcer was of about the size of a sixpence. The patient died.

CASE 7.—A man, aged 25 years, was seen on June 18th, 1901. The patient, a sturdy, robust labourer, stated that

[1] THE LANCET, Dec. 14th, 1901, p. 1656.

for about four weeks before admission he had suffered from indigestion and vomiting. On June 18th, while climbing a ladder, he was suddenly seized with intense abdominal pain. He was seen at once by a medical man who happened to be near and sent to the infirmary. He was then profoundly collapsed, his breathing was quick and short, his pulse was 128, and the abdomen was rigid and unyielding. A diagnosis of perforated ulcer was made. A perforation equal in diameter to a No. 8 or No. 9 catheter was found in the duodenum one inch from the pylorus. The ulcer was stitched and the abdomen was cleansed and drained. Recovery ensued.

CASE 8.—The patient, a female, aged 24 years, was seen on March 13th, 1902. She had been married eight weeks previously. She had suffered slightly before that from indigestion but never severely. 36 hours before operation she was suddenly seized with acute intolerable pain underneath the left costal margin. There was no vomiting but faintness and collapse were pronounced. Gradually the abdomen began to distend and the pulse to fail. On examination the abdomen was found to be distended uniformly and was everywhere tender. In the left upper quadrant, beneath the left rectus, there was a specially tender area. An ulcer near the cardia had perforated. The edges for at least an inch round were solid and hard and the stitches cut through when tightly tied. An area of stomach was infolded and an omental flap was stitched like a lid over the line of suture. There were large masses of thick lymph for a few inches round the ulcer. Recovery ensued.

CASE 9.—A girl, aged 17 years, was seen on April 20th, 1902. For several weeks she had had slight indigestion and epigastric pain, but not in sufficient severity to send her to a medical man. On April 19th, at 9 P.M., she had a sudden attack of acute epigastric pain. Morphine was given. When seen at 7 A.M. the abdomen was very rigid and rather tender, especially over the gall-bladder. The patient vomited once. The pulse was 112. There was very shallow respiration. An ulcer which had perforated was found on the anterior surface of the duodenum about three-quarters of an inch from the pylorus. There was some fluid above the stomach. The ulcer was closed by suture and the peritoneum was cleansed by wiping with swabs wet with sterile salt solution. There were no lavage and no drainage. The patient recovered.

CASE 10.—A woman, aged 20 years, was seen on Oct. 11th, 1902. In March, 1901, she had a very severe attack of hematemesis and afterwards symptoms of indigestion, but never severe. She remained anæmic for several months. In November, 1901, she had a second attack of hematemesis; she had had symptoms of indigestion since up to three months ago. Latterly she had been quite well, better than for years, and had suffered no discomfort from food. On Oct. 10th at 5 P.M. she had her tea; at 9 P.M. she had some broth; and at 11 P.M., while undressing, she had a sudden attack of pain under the ribs on the left side, "catching her breath." She was coiled up in bed groaning with pain and was slightly collapsed up to 2 P.M., when morphine was given. She had been comfortable since. When seen at 3 P.M. the abdomen was tight but not distended, moving very little; it was tender to the left of the umbilicus, especially just beneath the costal margin. The pulse was 122. There was no vomiting. Perforation was diagnosed on an almost empty stomach. A perforation was found close to the lesser curvature on the anterior surface equal in size to a No. 10 catheter. There was an indurated area around this equal in size to at least a florin. A single stitch was put through the ulcer to close it and then the ulcer was buried by a double continuous suture. A flap of omentum was turned over like a lid. There were many masses of lymph between the stomach and the liver and there was free effusion of turbid fluid into the peritoneum; this was wiped with wet swabs and then dried. The patient died.

CASE 11.—The patient, a girl, aged 16 years, was seen on Nov. 8th, 1902. For the last few weeks she had had some slight pain after food just beneath the left costal arch. The pain had been worse when she laughed and when she stretched her left arm upwards. There was a sudden onset of symptoms about 8 P.M. on Nov. 7th—pain, collapse, shallow breathing, &c. The abdomen was intensely rigid and immobile. The perforation was about equal in size to a lead-pencil and was situated near the lesser curvature towards the cardia. There were some flaky adhesions. The ulcer was sutured and an omental flap was turned over it. There was no drainage. The patient recovered.

CASE 12.—A woman, aged 23 years, was seen on March 5th, 1903. She had had indigestion for several months. On March 1st, when in London, she had a sudden attack of pain beneath the left costal margin; she felt faint and prostrate and vomited. She gradually felt better and on the 3rd travelled from London to Bawtry and ate a good luncheon on the journey. The side then felt "stiff" and hurt her if she laughed or turned quickly. On the 4th, after breakfast, she had a sudden extremely severe pain with collapse and vomiting. The abdomen had gradually distended and was now blown out and tympanitic; a fluid wave was easily felt. The patient looked very ill. The pulse was 156. Two perforated ulcers were found both on the anterior surface and in the cardiac half of the stomach near the lesser curvature. They were distant about one and a half inches from each other. One opening was of the diameter of a lead-pencil and the other of a knitting-needle. From both fluid gushed out. Both were closed by suture and the stomach was folded over. The omental lid afterwards covered both in. Drainage was effected by a split tube and a gauze wick at the upper part of the incision and through a separate suprapubic incision. Recovery ensued.

Leeds.

A Mirror
OF
HOSPITAL PRACTICE,
BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv., Proœmium.

EAST LONDON HOSPITAL, SHADWELL.

PROLONGED IMPACTION OF A FOREIGN BODY IN A BRONCHUS.

(Under the care of Dr. J. A. COUTTS.)

FOR the notes of the case we are indebted to Dr. W. P. S. Branson, pathologist.

The patient, a girl, aged three and a half years, was admitted to the East London Hospital, Shadwell, on Feb. 4th last, with a story of failing health for one month ending in slight pain in the right side of the chest, and slight cough for the three days preceding admission. Her bodily nutrition was good, but physical examination revealed complete dulness over the entire base of the right lung, with a sense of great resistance to percussion and a total lack of breath and voice sounds. The apex of the heart could not be defined but the sounds were normal, and examination elsewhere proved entirely negative.

For rather more than a month the child remained in the hospital without further appreciable loss of health and with an almost complete freedom from cough, though the abnormal physical signs persisted without variation and a hectic fever argued the activity of their cause. The presumption of empyema was so strong that during this interval the chest was explored no less than four times in five situations but always without result, except that the needle appeared to penetrate exceedingly dense tissue. In the circumstances Dr. Coutts advised an exploratory incision of the chest wall to eliminate the possible presence of such inspissated pus as often (in pneumococcal empyemata at least) defies the exploring needle, but while permission for the operation was being awaited the patient died. On March 13th, being in her usual moderate health, she made a satisfactory midday meal, within two hours of which she suddenly expired without cough or any observable respiratory seizure.

Necropsy.—Post-mortem examination showed great compensatory emphysema of the left lung and of the upper lobe of the right lung. The middle and lower lobes of the right lung were quite solid and bore superficially under the visceral pleura numbers of abscess cavities of all sizes up to that of a hazel-nut. On section these lobes were very hard to the knife and abounded in fibrous tissue, which fully explained the great resistance encountered by the exploring needle during life, while the central portion of each was occupied by firm, yellow, purulent material intersected by fibrous bands and dilated air-tubes. On opening the trachea and bronchi there was found impacted in the

right bronchus, immediately above the main branch to the middle lobe, a pea, still fairly hard, and having for evidence of its site of lodgment a slight cupping and injection of the bronchus at the spot. There was no sign of embolic interference with the vascular supply of the heart, nor anything to account for the suddenness of the end, and all the other organs appeared to be healthy.

Remarks by Dr. BRANSON.—It is a curiously rare thing for foreign bodies of any considerable size to effect the passage of the rima glottidis, considering that in children the mouth is the natural receptacle for all articles of value (according to the contemporary standard) the bulk of which is not prohibitive; and this immunity reflects the good service daily rendered by the mechanical and nervous arrangements of the larynx in preserving the deeper air-passages from invasion.

The entire absence of any such history as may reasonably be looked for when a foreign body suddenly invades the air-passages is a point for remark. Neither before nor after the fatal issue could any account of an asphyxial seizure be extracted from the quarters most likely to be informed. It is known, and can easily be appreciated, that the greater the mobility of a foreign body in an air-tube the more pronounced will be the reflex evidence of its presence. Authorities declare[1] that even the first entrance of such bodies, provided they immediately become fixed, may be unattended by noticeable expulsive efforts and such would appear to have been the case in the present instance. Certainly no class of foreign body seems better fitted to achieve immobility than a pea, granted only that it resists the first attempts at expulsion, for if inhaled in a dry state, or only moderately expanded, a pea would rapidly absorb from its humid surroundings enough moisture to convert it into a most efficient cork. On the other hand, a smooth, spherical object should lend itself to rapid ejection from the site of its first lodgment before time were allowed for swelling. Much, no doubt, depends upon the condition of the underlying air vesicles at the moment of impaction. Should this occur at the beginning of inspiration not only is the indraught relatively great, thus securing a relatively firm impaction, but there is available for the succeeding expulsive efforts little more than the residual air of the vesicular tissues, the inadequacy of the pressure of which can be readily understood. It is probable that all such immediately permanent fixations take place at the beginning of inspiration.

The exact mode of production of septic pneumonia in such a case is difficult to determine, for it is hard to credit that a smooth inert body should, *per se*, set up a spreading inflammation, or that a pea should carry with it any other organisms than those that have constant access to the root of the lung by the air-stream. A likely explanation appears to be that the affected tubes, being hermetically sealed, become channels filled with stagnant mucus in which may multiply at leisure organisms already abundantly present. If this be so the pathology of the condition may find its analogy in some broncho-pneumonias of infants and young children, the passive collapse so common in the latter instance securing the same physical conditions as the active obstruction of the case in point—namely, bronchi converted into culture tubes of a stagnant medium suitable for bacterial growth.

I am indebted to Dr. J. A. Coutts for his kind permission to publish the case.

MEXBOROUGH COTTAGE HOSPITAL.

A CASE OF TRAUMATIC URÆMIA; SUPRAPUBIC CYSTOTOMY; RECOVERY.

(Under the care of Mr. B. CROSSFIELD STEVENS.)

ON May 25th, 1903, a lad, aged 16 years, was admitted to the Mexborough Cottage Hospital suffering from a severe contusion of the abdomen the result of being caught between the buffers of two wagons. His pulse on admission was 120—doubtless evidence of shock. He was also unconscious. Neither urine nor flatus could be passed, so the catheter was used and bloody urine was drawn off. Enemata were also administered daily. He remained in this comatose condition and no hopes were entertained of his recovery. On the third day involuntary evacuations of diarrhœal motions set in. By rousing him at intervals he regained consciousness sufficiently to allow him to swallow nourishment and then lapsed into coma again. On the 28th Mr. Stevens saw him in consultation and recognised the condition as one of uræmic poisoning. The face was sallow and pinched, the pulse was quick but good, the respirations were hurried but not of the Cheyne-Stokes variety, the pupils were dilated, and there was frequent vomiting but no elevation of temperature. He was still semi-comatose but would answer when roused and spoken to. On examining the abdomen the hypogastrium was found to be hard and distended and the muscles were rigid. A swelling was palpated reaching as high as the umbilicus. A catheter was passed at once and a few ounces of bloody urine were drawn off and then almost pure blood followed. A rectal examination was negative. Mr. Stevens advised operation as the patient's only chance and this was performed on the same day.

After due antiseptic precautions the bladder was opened above the pubes. The anterior wall was found to be very friable and covered with fibrinous clot. A metal catheter was passed as a guide but could not be made to touch the finger in the bladder owing to intervening clot, so with a finger in the rectum as a guide a way was snipped through by scissors until the catheter could be seen. The bladder was two-thirds full of organised clot which was very adherent. This was with difficulty shelled off by the finger or pulled out by broad-bladed clamp forceps. The trigone of the bladder seemed to be the part most thickly covered by clot and the operation here was something like eradicating a prostate. Having cleared out the bladder as well as possible it was irrigated with two pints of boric lotion with hamamelis. A large rubber tube with a gauze drain by its side was then inserted and the incision was partly closed. The patient stood the operation well and was given a normal saline enema on his return to bed. On the next day the pulse rose to 126. The patient was brighter, no doubt having been relieved by the blood-letting during the operation; the vomiting ceased; and the bowels were opened three times. The amount of urine escaping by the abdominal drain was not altogether satisfactory. From this date till June 2nd the condition of the patient was extremely critical though his recovery was never despaired of. The pulse kept up to 120. Strychnine was given every four hours and the bowels were much relaxed (fortunately). The restlessness and delirium were extreme and chloral had to be given liberally. A diuretic mixture and salol were also prescribed. On the 4th the urine had a strong ammoniacal odour and the abdominal wound did not look very healthy, so the bladder was irrigated per urethram in addition to the abdominal route and clot and débris were removed. Potassium permanganate and chlorinated soda were the disinfectants used and fomentations of boric acid and chlorinated soda were applied to the wound. A smaller and shorter tube was inserted as a drain. The urine was syphoned into a vessel by the bed, while cellulose wadding absorbed what escaped on to the abdomen. On the 7th, as there was more urine passing and the pulse fell below 100, the strychnine was discontinued and also the soporifics. On the 8th the temperature rose for the first time to 101·6° and falling by lysis reached the normal on the 12th. On the 10th the bladder tube was removed but the bladder was irrigated twice daily per urethram. On the 13th there was a good deal of pain and the temperature again rose to 101·8° when there was passed through the abdominal wound a large cast of part of the bladder quite three inches in diameter with some phosphates embedded in, sloughy and foul. This set up fresh bleeding which, however, was not alarming. After this contretemps convalescence was uninterrupted. A rubber catheter was tied in, irrigation was continued daily, and the abdominal wound was allowed to heal. On July 14th the catheter was left out and on the 23rd the patient was discharged cured.

Remarks by Mr. STEVENS.—This somewhat rare and interesting case is recorded to show that when the bladder fills with blood which cannot be voided easily this blood by clotting and organising can produce back-pressure effects on the kidneys and cause uræmic poisoning. From what I saw at the operation the chain of events was: (1) trauma (contusion); (2) an organised effusion of blood into the bladder; (3) retention of urine; (4) ureteral and urethral obstruction; (5) back-pressure effects on the kidneys; and (6) uræmic coma. If the bladder had been full at the time of the accident we should probably have had a ruptured viscus to deal with instead of a contused and bleeding one. The raised temperature on the two occasions was inexplicable until the cast appeared and this, I think, was the slough produced by the initial contusion.

[1] Dr. Goodhart: Diseases of Children, sixth edition, p. 288.

Reviews and Notices of Books.

Pregnancy, Labour, and Childbed with Ovarian Tumour. By R. G. MCKERRON, M.A., M.D. Aberd. London: Rebman, Limited. 1903. Crown 8vo. Pp. 231. Price 7*s.* 6*d.* net.

THE importance of the complication of pregnancy with an ovarian tumour can hardly be over-estimated. It occurs in the proportion of about 1 in every 2500 cases and is therefore a by no means infrequent cause of abnormalities in connexion with childbirth. Dr. McKerron's valuable paper on the Obstruction of Labour by Ovarian Tumours in the Pelvis[1] is well known to all those interested in this subject. The present book is the outcome of the work done by him in the preparation of that paper. It is divided into three parts in which the complications produced by ovarian tumours in pregnancy, labour, and the puerperium are all considered. The author has collected a very large number of cases which he has arranged in tables.

The most important part of the book is that dealing with the treatment of these conditions. In considering the question of ovarian tumours in pregnancy immediate ovariotomy is recommended. The only possible exception to this rule is the case of a tumour discovered for the first time in the latter months of pregnancy and densely adherent. In these circumstances the operation may be postponed in the interests of the child until the end of gestation. The great importance of early operation is to avoid the occurrence of complications which add considerably to the danger. The author agrees with Dsirne's conclusions that if the operation is one of election equally good results may be anticipated for the mother at any period of pregnancy. Dermoid tumours are best removed entire. If the uterus be injured during the operation the best treatment will depend upon whether the ovisac is involved in the injury or not. If it is not, suture of the wound in the uterus is usually sufficient; if it is, Cæsarean section should be performed. Tapping the cyst should be reserved for those cases where the symptoms of pressure are urgent and operation is impossible or refused. Where the tumour is recognised for the first time during labour the treatment must obviously depend upon the question as to whether it is situated in the abdomen or the pelvis. In the former case the treatment is simple, the labour must be carefully watched, help given if necessary, and the tumour removed at the earliest opportunity afterwards. Pelvic tumours, however, form a much more formidable complication. It is only quite recently that the correct treatment of such cases can be said to have been decided upon. Every surgeon will agree that the plan of treatment advocated by Dr. McKerron is the safest and the best whenever it is possible. He advises immediate ovariotomy preferably by the abdominal route. In the cases where such treatment is not possible an attempt may be made to push up the tumour out of the pelvis. When neither of these modes of treatment is available then other measures must be adopted without delay. The tumour should be aspirated or incised. If it is solid or semi-solid then it must be removed either by the abdomen or the vagina. Failing this, Cæsarean section seems to be less dangerous than an attempt to drag the child past the tumour with forceps, or after performing version. In the removal of the tumour by the abdomen Cæsarean section should rarely be necessary. Up to the present time when an ovarian cyst has been found to be present in the abdomen after delivery the usual course has been to postpone its removal until some weeks have elapsed. Dr. McKerron shows good reasons for abandoning such delay. He strongly urges that all ovarian cysts should be removed, even in the puerperium, without any delay at all and brings forward several arguments in favour of such a course. He points out that under expectant treatment complications may occur in one out of every two cases, while there is no evidence in favour of the belief that the puerperal period is a specially dangerous one in which to operate.

A perusal of this most interesting work cannot fail to lead us to the conclusion that the best treatment for an ovarian tumour, whether occurring in connexion with pregnancy, labour or childbed, may be summed up in the advice to perform "immediate ovariotomy." For the illustrative cases and the facts upon which the author bases his conclusion we must refer our readers to the book itself. It is a work of much value and we have little doubt but that the author's arguments, founded as they are upon a very careful review of the whole subject, will be accepted by the great majority of obstetricians.

[1] Transactions of the Obstetrical Society of London, 1897, vol. xxxix.

The Natural and Artificial Methods of Feeding Infants and Young Children. By EDMUND CAUTLEY, M.D. Cantab., F.R.C.P. Lond. Second edition. London: J. and A. Churchill. 1903. Pp. 418. Price 7*s.* 6*d.*

THE second edition of Dr. Edmund Cautley's little book on the feeding of infants and children impresses us most favourably. It is clearly written and covers the entire ground of feeding under conditions of health; feeding under conditions of ill-health is, perhaps, wisely omitted, since thereby it permits of the fuller consideration of the general principles of infant dietetics without unduly increasing the size of the volume. There is some want of appreciation of the relative importance of certain questions which constitute the subject matter of several chapters. For instance, two of the chapters—namely, Chapters XII. and XIII.—are respectively concerned with the micro-organisms present in milk and with the curdling properties of milk under different conditions. On these subjects Dr. Cautley is entitled to speak with authority but from a practical point of view their importance does not warrant the disproportionate space which has been devoted to them.

Again, we are inclined to think that in many ways practical considerations of convenience have been sacrificed for academic and logical continuity of argument, and we believe that the majority of readers who will refer to this book for assistance will agree with us that the advice which Dr. Cautley has to offer would be more readily assimilable had a little more precision, and we would even add a little more dogma, been noticeable in his teaching. If, for instance, we imagine ourselves in the position of a young and inexperienced practitioner appealing to Dr. Cautley for assistance in private practice, we should probably read with some degree of impatience the first portion of the book, consisting of 186 pages which deal almost exclusively with the general principles of feeding and with the chemistry and physiology of milk. Excellently as this part of the book is written from a scientific point of view it covers ground which should have been traversed by every student at an early period of his professional education. When, however, we come to Chapter XI. we reach a part which deals with the practical application of the principles and a lack of precision appears. Twelve alternative methods of feeding are scheduled and the reader is left to decide for himself what method would be best for him to adopt. "Reference to these various mixtures will," in the words of the text,

"enable anyone with a moderate degree of intelligence to devise a food substitute for the particular child." We cannot help thinking that the average reader is credited with more intelligence than he usually possesses. And, further, he must be a man of infinite patience if he is to refer to Part I. in the case of each one of these 12 methods to see which is most likely to suit the particular case with which he has to deal. Let it be granted, however, that the reader is a man of determination and that he has made up his mind in favour of one of the methods. In such a case he will proceed to the next section and learn how to prepare each feeding; in this section an attempt has been made to find a sort of "common factor" for all the 12 methods, but inasmuch as all, or most of them, necessitate special precau ions in preparing the individual foods, the result, as far as plainness is concerned, is not all that could be wished. The next sections describe the kind of feeding bottle to be used and the temperature at which the food is to be given. These steps follow naturally on those which have been just described, but at this point there comes an interposition of three parts of a chapter on abstract considerations of micro-organisms in milk before we arrive at the important knowledge of how to sterilise the food, which we are supposed to have prepared in the last chapter and to have put into bottle ready for the infant to take. This want of arrangement clearly detracts from the value of Dr. Cautley's book as a guide. In many ways it might have been more advantageous if the author had described in detail and in consecutive order all the steps which it is necessary to take in order to carry on any one method; indeed, he might have been at greater pains to describe accurately the method which he uses himself. This method consists in combining certain proportions of cream containing 20 per cent. of fat with milk, water, and sugar; but although the value and accuracy of the method depend absolutely on the use of a cream of the required percentage, it is not made clear how cream of this strength is to be secured.

Dr. Cautley considers (p. 198) that it is theoretically unsound to increase after the second month of life the strength of diluted cow's milk with the increasing age of the child, for the reason that mother's milk does not become richer as lactation advances. This argument does not appear to us to be incontrovertible. Dr. Chapin in his excellent book on infant feeding has pointed out the great advantage of rearing hand-fed infants on a full percentage of proteid, since sound tissues cannot develop if the infant is fed on any alternative element of food. Now the majority of artificially fed infants cannot digest at the second month of life a percentage of proteid (such as is contained in cow's milk) which can be regarded as adequate, in view of the fact that, as compared with the proteid in human milk, it is but slowly digested and only indifferently assimilated. Indeed, it is only possible to increase the proteid elements in diluted cow's milk by slow and cautious degrees, and the process of gradual strengthening must be continued long after the second month. For these reasons we do not regard Dr. Cautley's principle of adopting a single standard of strength for milk after the second month of life as free from objection.

We have discussed at considerable length many of the points which have suggested themselves to us in reading Dr. Cautley's book, and because our remarks have been critical we must not be supposed to be blind to its merits. It is a book which is certainly worth reading and the information contained in it is both scientifically sound and practical. The defects in the arrangement of certain parts do not deprive the work of its genuine value.

Twentieth Century Practice. An International Encyclopædia of Modern Medical Science by Leading Authorities of Europe and America. Edited by THOMAS L. STEDMAN, M.D., New York City. Vol. XXI., Supplement. London: Sampson Low, Marston, and Co., Limited. 1903. Pp. 845.

ALTHOUGH but two years have elapsed since the completion of this encyclopædia the advances in certain lines of medical work have been so marked as to justify the preparation of a supplementary volume. There are no less than 40 contributors to this volume, so that it is impossible in the space at our disposal to refer to all the articles. The majority of the communications are by authors who have contributed to the other volumes comprising this publication and who have taken advantage of the invitation of the editor to bring the subjects for which they were responsible fully up to date. Professor von Noorden, for example, records the advances which have been made in the pathology and treatment of diabetes, and the late Dr. T. J. Maclagan reiterates his opinion that the poison of rheumatic fever is a minute organism which enters the system from without, although he admits that the microbe has not yet been definitely recognised. Mr. John B. Walker (New York) makes some interesting observations on the treatment of hernia, especially in regard to the operative methods for the radical cure of the affection. Dr. A. E. Sansom contributes a short article on Diseases of the Aorta in which he emphasises the fact which has not yet received the recognition which its importance deserves—viz., that atheroma is the degenerative result of all lesions of the aorta, whether acute or chronic.

The discovery of the Roentgen rays was made while the earlier volumes of the Encyclopædia were in course of publication and Dr. Carl Beck, professor of surgery in the New York Post-graduate Medical School and Hospital, writes a comprehensive article on the diagnostic and therapeutic applications of this form of radio-activity. A good description is given of the apparatus employed in the clinical application of the x rays and the methods of examination are likewise detailed. Dr. Beck pays due attention to the great usefulness of the rays in surgery. He points out that fractures and dislocations are shown as they really are in life. Even the most skilful experts in fractures are unable to deny that there are many injuries to bones the character of which could formerly not be recognised on account of the swelling of the area involved or of the obscurity of the symptoms. In such cases examination with the fluoroscope may furnish precise evidence. The remarks on the use of the rays as an aid to diagnosis in disease of the thoracic organs are also interesting. The author speaks very highly of the information that is gained by fluoroscopy and skiagraphy, maintaining that pneumonic consolidation, tuberculous foci, cavities, abscesses, tumours, bronchiectatic conditions, emphysema, and pleuritic effusions can all be recognised by these methods. We cannot go so far as this, but as an auxiliary method of examination of the chest the rays may prove of some value. For the present, at any rate, we cannot accept their evidence when contradicting the conclusions arrived at by the ordinary methods now in use for detecting thoracic disease, and further their employment requires such special apparatus that their general adoption is almost impossible.

The demonstration by medical officers of the United States Army in Havana of the agency of the mosquito in the transmission of yellow fever, and the practical application of this demonstration to the suppression of the endemic forms of the disease in Cuba have necessitated a restatement of the accepted teachings concerning the disease. This task has been undertaken by Dr. George M. Sternberg of Washington, a retired surgeon-general of the United States Army.

He gives an interesting account of the researches which have been made into the etiology of yellow fever, especially the experiments of the late Major Walter Reed (surgeon, U.S.A.) and his associates. As a result of their investigations they came to the conclusion (1) that the bacillus icteroides (Sanarelli) stands in no causative relation to yellow fever, but when present should be considered as a secondary invader; and (2) that the mosquito serves as the intermediate host for the parasite of yellow fever. The inference drawn was that the fever may be transmitted by mosquitoes of the genus culex, but that in order to convey the infection to a non-immune individual the insect must be kept for 12 days or longer after it has filled itself with blood from a yellow fever patient in the earlier stages of the disease—in other words, that a certain period of incubation is required in the body of the insect before the germ reaches its salivary glands and consequently before it is able to inoculate an individual with the germs of yellow fever.

Another contribution worthy of special notice is that on Bacillary Dysentery by Dr. K. Shiga of Tokio. He gives a good account of the bacteriology of the disease.

Mr. W. Roger Williams is responsible for a review of the work which has more recently been accomplished as to the cause of cancer. He criticises the investigations which have been made in regard to the parasitic origin of the disease and its suggested infectivity. He considers that the evidence as to the existence of a specific cancer microbe has broken down and also that there is no proof that the disease can be spread by infection.

Cellular Toxins, or the Chemical Factors in the Causation of Disease. By VICTOR C. VAUGHAN, M.D., LL.D., Professor of Hygiene and Physiological Chemistry and Director of the Hygienic Laboratory in the University of Michigan; and FREDERICK S. NOVY, M.D., Sc.D., Junior Professor of Hygiene and Physiological Chemistry in the University of Michigan. Fourth edition, revised and enlarged. London: Rebman, Limited. 1903. Pp. vi. + 495. Price 14*s.* net.

THE paucity of works dealing at any length with the chemical products of bacteria as contrasted with the multitude of text-books of bacteriology devoted to the study of the morphology and pathological relations of micro-organisms is very remarkable. Such a volume as that at present under consideration is therefore very welcome, and it would be difficult to find authors more capable of doing justice to the subject than Professor Vaughan and Professor Novy who have been for so many years workers in this department of research. As long ago as 1885 Professor Vaughan discovered the poisonous body "tyrotoxicon" in cheese which had proved harmful, and the work of the authors on the bactericidal constituents of blood serum was of the highest value. The present volume is the fourth edition of a work which first appeared 14 years ago. During that period attention has been diverted from the basic products of bacterial activity,—the ptomaines,—which were originally supposed to be the chief factors in the causation of disease, to the synthetic substances—cellular toxins—formed within the cells of the micro-organisms. Consequently, much re-writing and re-adjustment of the space allotted to the various subjects treated have been necessary and a change in the title of the book, expressing the alteration in our conceptions, has been made.

After an introductory chapter showing the essential importance in the etiology of a disease of the poisons produced by the associated micro-organism, the various toxic bodies formed by individual microbes are studied in detail. The germicidal properties of blood serum are next dealt with, and then precipitins, lysins, and agglutinins are treated in successive chapters. This portion of the book is an excellent *résumé* of the work which has been done by various investigators, but amid this impartial record of results obtained we cannot help wishing for a little more of the personal touch of the authors. A chapter on immunity follows and, as was to be expected, an even balance is kept between the various hypotheses which have been suggested as explanations of this natural or acquired condition, and care is taken to insist that the factors involved in securing immunity against infectious disease are multiple in number and varied in character. The authors' first-hand experience is stamped on the section dealing with food poisoning, which is very complete notwithstanding that they lament in the preface that in the desire to take up less space statements of considerable importance are omitted, especially in the chapter devoted to poisonous food. A glossary containing a somewhat formidable array of new terms employed by the authors is prefixed to this chapter.

The remainder of the work—nearly one-half—is taken up with the chemistry of the ptomaines and leucomaines. The individual members of these two groups are treated with much detail and several useful lists and tables of the principal reactions of these bodies are given. This is probably the best account to be found in English of these decomposition products, and it seems to be the portion of the subject with which the authors have the most sympathy and interest. An immense number of facts are here collected from the original papers and they are thoroughly well digested. The cleavage products of the proteids are very completely treated and there is a fairly full discussion of the work of Kossel and others which throws light on the constitution of the proteid molecule. Next we have a short account of the toxicity of the urine and of the venoms of poisonous serpents, and a final short but suggestive chapter deals with what the authors call "autogenous" diseases.

For anyone who wishes to learn what work has been done on cellular tissues up to the most recent date this book is to be strongly recommended. It brings together and analyses a vast mass of information and we are grateful to the authors for the immense labour which must have been spent on the work.

LIBRARY TABLE.

A Practical Guide to Disinfection. By M. J. ROSENAU, M.D., Director of the Hygienic Laboratory, Washington. With a Supplement by FRANCIS J. ALLAN, M.D. Edin., Medical Officer of Health of the City of Westminster. London: Rebman, Limited. 1903. Pp. 353; Supplement 94. Price 10*s.* net.—This sensible manual is divided into six chapters, not the least interesting of which is the first on physical agents, including sunlight, electricity, and heat. This is followed by a chapter on gaseous disinfectants, such as formaldehyde, sulphur dioxide, chlorine, and ozone. The author very properly lays stress upon the danger of using the vapour of hydrocyanic acid for disinfecting purposes. There is a useful chapter on the chemical solutions commonly employed in disinfection, and after this come practical chapters on the use of insecticides, the disinfection of houses and ships, and special means of disinfection for the communicable diseases. The onset and cause of the diseases are described and the best application of disinfection is discussed. The book is thus thoroughly practical and should be of distinct service to the general practitioner. The relative germicidal efficiency of the commonly employed disinfectants is given. The use of a spray is described in the supplement, in which we are also glad to see that Dr. Allan has not omitted to emphasise the advantage of effectually removing infected dust from floors, walls, and ceilings. In this connexion he mentions the method of cleaning by vacuum which was described at length in THE LANCET of Feb. 14th, 1903, p. 465. The book may be confidently

recommended to those in need of practical instruction on a very important subject.

Doubts about Darwinism. By a SEMI-DARWINIAN. London: Longmans, Green, and Co. 1903. Pp. 115. Price 3*s.* 6*d.*—The title of this little book has been chosen to indicate that the author has no intention of attacking the Darwinian theory as a whole. He does not question the general doctrine of evolution nor does he desire to disturb the position of the "Origin of Species" as an epoch-making book. He does not doubt that natural selection or, to use Mr. Spencer's term, "the survival of the fittest" has been a powerful factor in the development of the animal creation. He only follows Huxley in doubting whether the principle is adequate to account for the whole series of changes between the few simple creatures which Darwin postulated and the complicated animals with which the world is at present peopled. The first part of the book is occupied with the doctrine of spontaneous generation, and the second states the doubts as to the adequacy of natural selection to account for certain essential features of evolution—viz., the production of organs and structures, the faculty of reproduction, the origin of parental instincts, and the deeper subject of the origin of consciousness. The doubts expressed are confined to Darwinian principles in their application to animal life. We do not find any new subject-matter in this work, which is, however, a very readable collection of essays founded on the writings of Huxley, Wallace, Haeckel, Tyndall, Weismann, Fry, Spencer, and other *savants*. If the views collected in these pages are correct the phenomena presented by the first appearance of living things on the earth and by all the changes which have resulted in producing the present condition of the animal creation and of man cannot be accounted for entirely by natural selection. The argument tends to show the intervention of a Being possessing the attributes of intelligence, intention, power, and eternity.

Public Schools and the War in South Africa 1899–1902: Some Facts, Figures, and Comparisons, with a List of Specially Distinguished Officers. By A. H. H. MACLEAN. London: Edward Stanford. 1903. Pp. 99. Price 1*s.* 6*d.*—This pamphlet is an inquiry into the education of officers during the period before and after they enter the army and has arisen as one of the many questions which have exercised the minds of Englishmen since the beginning of the war in South Africa. The war has furnished a test of the military products of the schools, the result of which is expressed in figures in these pages. The author has decided that for the purposes of this book the qualification for the title of "public school" is the contribution of at least 14 officers to the South African war—a definition which he remarks is "probably as sound as any other." The schools are arranged in three groups, based on their numerical contributions of officers—"the 10 great public schools," "the 22 middle-group public schools," and "the 30 minor public schools." The statistics which are naturally of most interest to us are those which relate to the Army Medical Service. We note that the 62 public schools sent only 100 medical officers to the war; the total seems small, seeing that there must have been many hundred army medical officers from all sources. Clifton and Sherborne head this list, from which we are surprised to find the name of Epsom College absent. The latter school did, however, send nine old boys as civil surgeons to share in the campaign. Of the 100 officers, 27 had been educated at the 10 great public schools, 53 at the middle group, and 20 at the minor public schools; of the number 32 per cent. were mentioned in despatches and 14 per cent. were awarded honours. Beginning with the comparison of the public school with the non-public school product of regular officers the following facts are noticeable. The public schools supplied more than half as many again as their rivals. Taking the public schools as a class separately, the Engineers, Artillery, and such Indian officers as there were, were the best products, while the cavalry was their least satisfactory contribution. In the administrative posts the public schools completely outshone their rivals. Most of the few officers in whom the spark of genius was revealed were not public school men. The ten great schools were, in the quality of their generals, cavalry, and infantry, superior to both the middle-group schools and the minor schools. In engineers and artillery the minor schools were, man for man, vastly better than the middle-group and as good as the great schools. In cavalry and infantry the middle-group were superior to the minor schools. Comparing the public schools among themselves, Eton, Harrow, Wellington, and Cheltenham sent the most officers to the war, not only absolutely, but in proportion to the numbers in the school. For the general excellence of their products Wellington and Cheltenham stand unmistakeably in a class by themselves. Of the middle-group schools, Westward Ho! and Westminster were a long way the best, while Sherborne excelled in its infantry and Portsmouth, with a young lot of officers, showed remarkable promise. The pamphlet is worthy of perusal by those who are thinking of bringing up their sons to follow the profession of arms.

With the Army Service Corps in South Africa. By Colonel Sir WODEHOUSE RICHARDSON, K.C.B., Deputy Adjutant-General for Supplies and Transport in South Africa, 1899–1900. London: Richardson and Co. 1903. Pp. 161. Price 2*s.* 6*d.* net.—These pages contain extracts from the diary kept by Sir Wodehouse Richardson in South Africa, which he publishes hoping they will prove of some use to those officers who may be called upon to administer the supply and transport service in any future campaign. Before leaving England for the seat of war he submitted to the War Office certain recommendations regarding the supply and transport service and he wrote to Sir Redvers Buller urging him to sanction the despatch of the Army Service Corps *personnel* at the earliest possible date. To these causes was mainly due the satisfactory working of the Army Service Corps services during the war. We congratulate the author on having furnished so interesting and instructive an account of the difficulties which had to be surmounted by his corps during the first phases of the South African campaign; and we draw special attention to his final chapter in which he discusses points which appear to merit the sincere attention of officers who in the future may be called upon to organise or to administer these services. His observations on hospital supplies; on the scale of rations (biscuit, preserved meat, jam, tobacco, and soap); on the methods of packing; on the supply of maps; and on latrine paper which, he observes, is required on field service and for use in hospitals, are deserving of something more than passing attention by the central authority. With regard to the latter point—the supply of latrine paper—we regard it as little less than a scandal that this requisite is not served out to all the troops; to supply it merely for use in hospitals is foolish. The questions in this book which naturally most interest us are those that relate to the hospitals, their officers and supplies; and here we find the weak part of this work, for a but half-concealed antagonism to the medical officer and all he has to carry out is evident throughout the extracts. Sir Wodehouse Richardson has no good word to say for the officers of the Royal Army Medical Corps or their methods, and almost whenever he mentions them it is in veiled ridicule or with almost expressed contempt at the arrangements made, or at what he is evidently pleased to consider misplaced energies. At page 73 he even hints at a want of honesty in the medical corps. The existence of this unfair prejudice detracts from the value of a useful little book.

Elementary Ophthalmic Optics. By Dr. FREELAND FERGUS.—We received from Dr. Freeland Fergus, upon the publication of our review of his work, a letter asking for examples of errors which would justify the condemnatory tone used by our reviewer. This letter was marked "not for publication," or we should have printed the protest. We immediately communicated with our reviewer and sent to Dr. Fergus certain notes which the reviewer supplied for the purpose. We have now received Dr. Fergus's notes in reply, in which he traverses the criticisms of our reviewer, considering that his strictures have chiefly reference to a mere convention with regard to signs. We are left by Dr. Fergus to deal with his notes as we think proper and we shall have pleasure in publishing them, our only desire being to give our readers a just opinion of a book submitted to us for criticism. It is clear that if Dr. Fergus makes good his opinion of our reviewer's strictures, those strictures will not be warranted and we shall withdraw them. We regret that Dr. Fergus's notes did not reach us in time for publication in this issue.

New Inventions.

NEST-SPRING REELS FOR SILK AND CATGUT LIGATURES WITH PORTABLE STERILISER AND CONTAINER.

THIS appliance consists of a container in which the reels upon which the silk is wound can be boiled in any ordinary steriliser. The essential feature of the contrivance is the reel. There has always been the difficulty that, as silk contracts so much when boiled, the ordinary reels, plates, &c., are not suitable for boiling silk upon. The reels, however, as shown in Fig. 1 A A, are made of thin perforated spring metal, with a rim at each end of small separate metal blocks and a broad slit down the whole length of the reel. This slit closes as the silk contracts and yet the spring reel keeps the silk gently on the stretch and prevents entanglement. The silk is wound in a *single layer* (which renders sterilisation

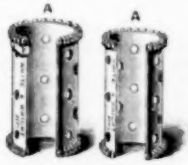


FIG 1.

FIG 2.

easy and complete) round the smaller reel first; this is then slipped into the larger reel and the silk is taken through the slit in the latter and then wound in the same way as on the inner reel, care being taken to keep the slit on the inner reel opposite that on the outer reel and to make the outer reel gently grasp the inner. It may be worth mentioning that it is a very simple matter to wind these reels by fixing one end of the silk at a distant point and winding the reel up to the point of fixation. It is obvious, of course, that when the silk is wound off the outer reel it works down the inner reel which is now free to rotate—the thread from it escaping along the gap or slit in the outer reel. The two reels together hold about ten yards of medium silk wrapped in a single layer; so that if so much silk were not required one reel could be used alone. The container, as shown in Fig. 2, is a box with two troughs to contain two sets (for silk of different sizes) of these nest-spring reels. The double trough arrangement is of one piece of metal which can be taken out for cleaning. On the front of the container is a slide B which is opened like a ventilator to allow water to gain the interior of the box through two holes—one opposite the centre of each compartment—during sterilisation and when this process is complete to empty the water through without otherwise opening the box. The slide is then closed. Fig. 3 shows the container covered with the inner lid C. This lid has two slits closed by springs D D, one over each compartment. The silk is drawn off the reels through these slits and the springs prevent the ends from slipping back. The container is completely closed by the tightly fitting lid E and is then ready for placing in the surgeon's bag with the silk inside sterilised. The container measures 3 by 2½ by 1½ inches and is nickel plated throughout.

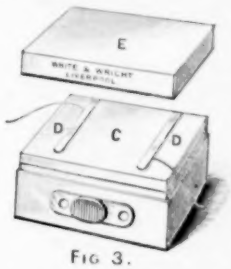


FIG 3.

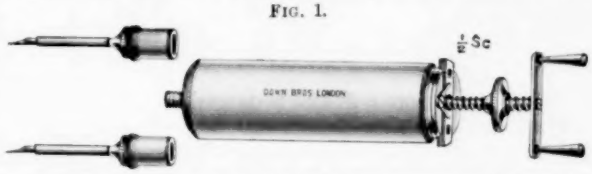
A modification of this appliance is made for catgut. Smaller reels of the same kind are used and they fit an ordinary Mayo Robson steriliser, in which they can be boiled in xylol with the catgut wound round the reels in the same way as is the silk. They are then placed in a similar container to that described, but made without the slide in front and with a special outer lid to allow of the gut being kept and carried safely in spirit or whatever similar preparation is used. The gut is used direct from the box without fear of contamination or of the spirit being soiled. Messrs. White and Wright of 93, Renshaw-street, Liverpool, have faithfully carried out my instructions and have produced a most useful and neat appliance.

Liverpool. W. BLAIR BELL, M.D. Lond., M.R.C.S. Eng.

A NEW SYRINGE FOR INJECTING PARAFFIN.

I HAVE had constructed by Messrs. Down Brothers a modification of Eckstein's syringe for the injection of solid paraffin in cases of sunken nose and similar disfigurements. It will, I think, be found to be an improvement on the original and I can specially recommend it for use by those who seldom have the opportunity of practising this kind of work. The syringe, as shown in Fig. 1, is of solid metal with screw-on nozzles and is all cased in indiarubber. In order to retain the heat as long as possible I have added an indiarubber cap over the bottom plate of the cylinder. When the syringe, thoroughly heated, is filled with paraffin melting at 104° F. it is found to keep the paraffin in a fluid state for about five minutes in a warm room, thus giving plenty of time to carry out even a delayed operation. In all such operations the difficulty is the tendency the paraffin has to solidify in the lumen of the needle, the unrubbered metal point being very

FIG. 1.



rapidly cooled to the body temperature on introduction under the skin. When this occurs the reverse of the Bramah press is formed and enormous force is required to expel this trifling plug from the needle. This I have overcome by having the piston rod cut with a screw thread. On the top plate of the cylinder (Fig. 2) there are two plates running in grooves and kept apart by a spring. The adjacent ends of these plates are cut to fit the thread of the screw on the piston rod. When the plates are apart the piston can be worked out and in, as an ordinary syringe,

but if the needle becomes blocked and it is necessary to apply force to the contents of the cylinder the plates are approximated by the finger and thumb of the left hand and catching the thread of the piston rod, the piston can then

FIG. 2.

be screwed into the cylinder instead of being pushed. Much greater pressure is in that way applied to the contents of the cylinder and the plug of solidified paraffin is easily forced out. DAVID M. GREIG, C.M., F.R.C.S. Edin.

Dundee.

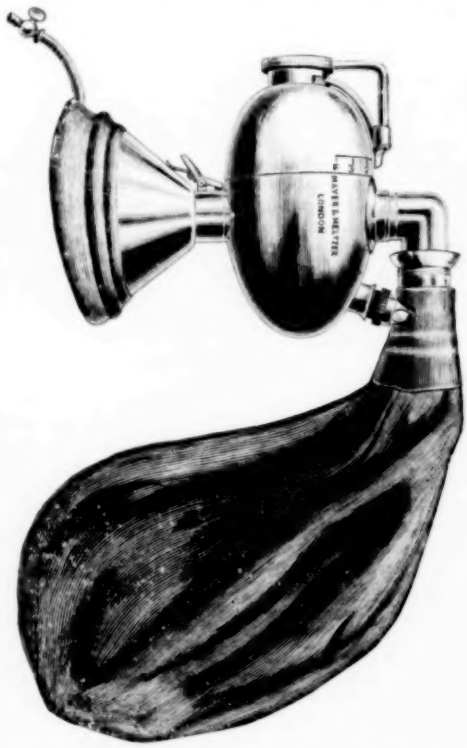
AN IMPROVED BED CONVENIENCE.

THE illustration represents a new form of "bed convenience" or urinal for the use of invalids or bedridden persons suffering from incontinence of urine. It seems to combine the chief desiderata in such an appliance—namely, flatness of shape, non-liability to spilling of the contents, and facility of emptying. The reservoir is of nickel-plated sheet metal having for its extreme dimensions a length of 13 inches, a width of six inches, and a depth of two and a quarter inches. The receptacle for the urethral orifice is of pliable indiarubber and is attached to the reservoir by a ball and socket union which allows some freedom of movement in

all directions. The arrangement shown, in which the indiarubber part is buttoned to a waist-belt in front, is for males; for the use of females the indiarubber part is concave above with two straps at the inferior margin. The reservoir and metal fittings are identical for both sexes. If required, the reservoir can be emptied in the following way without removing it from the bed or disturbing the patient in the slightest degree. A flexible indiarubber waste-pipe leading over the edge of the bed is attached to the short outlet nozzle as shown and if the urine does not flow away it is withdrawn by syphoning through the waste-pipe, for which purpose air is forced into the upper part of the reservoir by means of the globular hand-bellows. The manufacturer is Mr. Thomas Bradley, 25, Wellington-street, London, W.C.

A WIDE-BORE ETHER INHALER.

THE advantages of a regulating inhaler for the administration of ether as an anæsthetic are well recognised. Among the instruments made on this system Clover's portable inhaler is certainly an excellent one, but it nevertheless has a distinct drawback in the narrowness of the tube through which the patient breathes. This tube, at the end to which the bag is attached, is of about the diameter of the average trachea which is quite sufficient; but at the end to which the facepiece is fitted or at some other part this bore is diminished by one-half and occasionally by even more, and as a result obstruction is offered to free breathing. Modifications of Clover's inhaler with the bore increased have been introduced by Dr. T. Wilson Smith[1] and Dr. F. W. Hewitt[2] and for some time I have been making experiments with a similar object in view. Messrs. Mayer and Meltzer, 71, Great Portland-street, London, W., have now made for me the inhaler which is shown in the illustration and which I venture to think presents all the essentials of a good portable regulating inhaler with a free passage for respiration. In shape



it is oviform and the body is pierced in both its short and long diameters by two tubes. Through the short or vertical tube the patient breathes and to its extremities are attached the bag and the facepiece respectively. In the long or horizontal diameter there rotates another tube which regulates the amount of the air which is guided into the ether chamber. An indicator is fixed to the end of this tube and moves round part of the larger end of the inhaler. The index is divided as in Clover's inhaler, 0, 1, 2, 3, F. The vertical tube—that is to say, the one through which respiration takes place—is slightly wider in diameter than the average adult trachea and this bore is not diminished at any time during the administration, so that there is no obstruction to free breathing. At the smaller end of the body of the inhaler is the opening through which the ether is introduced. This is closed by a stopper with a bayonet joint. There is no water chamber and the two metal parts composing the inhaler may be separated and boiled and thus rendered sterile. The facepieces are of metal with detachable indiarubber collars and air-pads; they are fixed to the inhaler with a small catch which easily enables the inhaler to be held in any position and at the same time allows one facepiece to be quickly changed for another. For preceding the administration of ether by nitrous oxide a detachable bag, either with or without valves, may be used as with Clover's inhaler. The benefit of the increased bore is shown by the quicker respiration, while the patient secretes less mucus and saliva and does not become cyanosed. The inhaler is six ounces lighter than the ordinary Clover model and is more comfortable to hold on account of its shape. R. J. PROBYN-WILLIAMS.

Welbeck-street, W.

[1] Medical Annual (Wright) 1899.
[2] THE LANCET, March 30th, 1901, p. 916.

THE LANCET.

LONDON: SATURDAY, AUGUST 29, 1903.

Lord Salisbury as a Man of Science.

BY the death of Lord SALISBURY the country has lost an earnest student as well as an admirable exponent of science, and it is in this capacity that we wish to speak of him, leaving to the general press, as is fitting, the duty of recording and estimating the services to his country of the dead statesman. With his characteristic modesty and retiring disposition Lord SALISBURY never claimed to be a man of science, but all who listened to his presidential address "On the Unsolved Riddles of Science" delivered before the meeting of the British Association at Oxford in 1894, as well as those who had the pleasure of reading it afterwards in our columns,[1] were deeply impressed with the comprehensive grasp which he had upon the development of science in each and all of its branches. On that occasion he certainly did not confine himself to a mere generalisation of the scientific position; on the contrary, he alluded, and with a freedom which completely surprised those who devote their time almost exclusively to scientific study, to many of the minutest details in the problems which occupy the attention of the chemist, physicist, biologist, and astronomer. He discussed the foundation of the atomic theory, the nature and origin of the so-called elements, the spectroscope in its application to the study of solar and stellar phenomena, ether and Herzian waves, bacteriology, and the theory of natural selection, and did so with the confidence of one who knew his ground. This gave great conviction to his conclusion that the advances in each section of knowledge had been very great, while the hope of penetrating the prime mystery of all seemed as far off as ever. Lord SALISBURY confessed to being pessimistic as to whether we should ever gain a clear insight into the nature and origin of life. It was characteristic of him, viewed in the light of his known mental attitude in other provinces, that he chose to survey the state of our ignorance rather than the proud position of our science. "We live," he said, "in a small bright oasis of knowledge surrounded on all sides by a vast unexplored region of impenetrable mystery and from age to age the strenuous labour of successive generations wins a small strip from the desert and pushes forward the boundary of knowledge."

Confession like this to a sense of the smallness of man, his aims, and his objects, comes frequently from those who have pursued science all their life, and stamps Lord SALISBURY with the brand of the great philosophers. Sir ISAAC NEWTON 200 years ago wrote: "I do not know what I may appear to the world but to myself I seem to have been only like a boy playing on the seashore and diverting myself in now and then finding a smoother pebble or a prettier shell than ordinary, whilst the great ocean of truth lay all undiscovered before me." And all modern men of research feel the force of this truth, however brilliant their discoveries may be. A striking confession of impotence in regard to our efforts to reach finality in one direction was contained in the presidential address delivered by Professor DEWAR before the British Association of Science at Belfast last year. Everyone knows what wonderful perseverance and skill Professor DEWAR has brought to the attempt to obtain the temperature of absolute zero and what light on the nature of things such an achievement would be calculated to throw. Yet he admitted, just when everyone expected to hear that he was on the eve of success, that all efforts to attain a temperature lower than 13° absolute had met with failure, and he went even further and expressed the opinion that it was extremely improbable that the absolute zero would ever be reached by man. Thus it would seem that we may never know the chemistry of extreme cold nor probably that of extreme heat. Again, chemists have vigorously laboured since the time of DALTON at elucidating the nature of the atom and in spite of brilliant discoveries "all have failed," to quote the words of Lord SALISBURY, "to show what the atom is, whether it is a movement, or a thing, or a vortex, or a point having inertia; whether there is a limit to its divisibility and if so how that limit is imposed; whether the long list of elements is final, or whether any of them have any common origin." A very important step forward has been made by the discovery of radium, the properties of which have proved the existence of a fourth condition of matter—radiant matter, as Sir WILLIAM CROOKES called it years ago, now definitely known as electrons. But it cannot be denied that what we know is infinitesimally small compared with what we do not know, and that the pessimistic tendency of our greatest minds has a logical ground. "Of counteracting and complementary forces to which we give the provisional names of 'negative' and 'positive' we know about as much," said Lord SALISBURY in the address to which we have referred, "as FRANKLIN knew a century and a half ago. Vital force continues to defy not only our imitation but our scrutiny, and if we are not able to see far into the causes and origin of life in our own day it is not probable that we shall deal more successfully with the problem as it arose many million years ago. ..... The deepest obscurity still hangs over the origin of the infinite variety of life." For Lord SALISBURY was obviously reluctant to accept the views of the Darwinian school. He delighted in contrasting the deductions of the mathematician and geologist with those of the biologist upon the question of when life was first possible upon this planet. "If the mathematicians are right," he said, "the biologists cannot have what they demand. If for the purposes of their theory organic life must have existed on the globe more than a hundred million years ago it must, under the temperature then prevailing (according to the calculations of the mathematician), have existed in the state of vapour. The jelly-fish would have been dissipated in steam long before he had had a chance of displaying the advantageous variations which were to make him the ancestor of the human race." The words sound flippant, but they convey the wise lesson that as yet we know very little. Our greatest theories fail to tally with our most exact calculations, and the earnest student has to abide in the gloom of doubt without much indication of the direction whence light may come to succeeding generations.

[1] THE LANCET, August 11th, 1894, p. 306.

It is generally understood that the branch of science which Lord SALISBURY loved best was chemistry, and the freedom with which he discussed chemical questions gives weight to the suggestion. Besides, it was well known that he spent much time in his laboratory in Hatfield House, where, however, he directed his attention also to engineering and electrical problems. He conceived the idea of utilising the flow of the river Lee for the electric lighting of the house, and the provision of a water-supply to the town of Hatfield from the mains of Hatfield Park was due to his thought and kindliness. In many ways he showed that his love of science had practical as well as academic leanings, but he made no original communication on scientific subjects to the learned societies. He was elected to the Fellowship of the Royal Society in 1869 and almost immediately became a member of the council. He took a keen and active interest in the internal affairs of the Royal Society, for he served on the council in 1882-83, and again in 1892-94. He was vice-president also in 1882-83 and in 1893-94. And almost his last public act was associated with science and not with politics, for on the occasion of the election of the PRINCE of WALES to the Fellowship of the Royal Society in April last it was Lord SALISBURY who introduced him to the President and Fellows. Lord SALISBURY'S character as a man of science deservedly secured for him the particular respect and admiration of our profession, though it must be confessed that he made no bid whatever for our favour. Lord SALISBURY'S name is not associated with a single popular measure of the kind that would be sure to win medical approbation. But medical men could see in his attitude towards life the trained and austere thinker. He did not speak if he did not know; he would not proceed to the next step till he had verified the one on which progress should depend; and having convinced himself in which direction truth lay he would hold firmly to his convictions.

What is Sciatica?

IT is always refreshing to find someone willing to assail an old-established theory in medicine, for if the attack should prove successful it will serve to overthrow an erroneous opinion and put in its place a theory which is nearer the truth, and thus our knowledge is advanced; while if the attack fails we feel that the received views have gained additional support and we look upon them as more firmly established than ever. For it is good for us to examine from time to time the reasons for the faith that is in us and to test the firmness of the foundations of our beliefs, that we may be assured that we have not believed in vain. No true scientific opinion can suffer by being put to the test, for only the false fail to stand the trial. Within the last year or two the phenomena connected with radium and other similar manifestations have caused physicists to revise some of the most fundamental theories connected with the nature of matter and force, and to modify tentatively their hypotheses. Every change in theory thus necessitated by additional observation will lead to a closer approximation to the truth, and yet we must not look upon these advances as final, for in their turn these new theories may have to give place to still newer hypotheses.

So it is with the science of medicine, and no truly scientific physician will persist in holding as perfect a theory which is unable to explain the symptoms and signs connected with a disease—the discrepancy discredits the theory. But if, on the other hand, it can be shown that the apparently contradictory fact is easily reconcilable with the theory, the theory does not merely escape from the attack but it receives additional confirmation from the very fact that was supposed to invalidate it. Dr. WILLIAM BRUCE has recently delivered a lecture[1] at the Medical Graduates' College and Polyclinic on Sciatica, in which he advances the ingenious but somewhat startling opinion that the complaint known as sciatica is quite unconnected with any affection of the sciatic nerve. He considers that the condition is neither more nor less than an inflammation of the hip-joint, probably osteo-arthritic in nature. The arguments on which he founds this opinion are based on observation of 418 instances of the disease and they may be summarised as follows. In almost all of his cases lameness was present, movement causing pain; there was "tenderness on pressure over the capsule" in more than half the cases; and flexion or rotation caused pain in a large proportion. In almost every case he has found wasting and flattening of the hip muscles and a more or less obliteration of the gluteal folds of the affected side. Dr. BRUCE contends that if sciatica were an affection of the sciatic nerve all the muscles supplied by it should be wasted and not muscles like the glutei which are supplied separately by nerves from the sacral plexus. In sciatica, moreover, he points out, there is pain along the outer side of the leg extending in some cases as low down as the heel, and there are also occasional patches of anæsthesia, generally on the outside of the thigh or leg. These pains and patches of anæsthesia Dr. BRUCE attributes to "reference" from the branch of the sciatic nerve which supplies the hip-joint, and he points out the similarity of the symptoms to those displayed in the morbus coxæ of childhood. In more than half of his cases there was evidence of gout or rheumatism in other joints and a small number of cases which began as sciatica went on to ankylosis of the hip-joint.

We may acknowledge *in limine* that there is great justification for the attack which Dr. BRUCE has made on the present use of the name "sciatica." Only too often is the word employed as a convenient general term for pain over one hip, especially in middle-aged and elderly persons. Thus it has been used to cover a multitude of miscellaneous conditions which should never have been grouped together, either clinically or pathologically; and this error has been committed not only by patients but also by many members of the medical profession who have been too ready to hide under a convenient well-known appellation their want of knowledge of the exact condition present. Undoubtedly many cases of disease of the hip-joint, especially forms of osteo-arthritis in the elderly, have been called sciatica merely because the pain has been chiefly felt in the gluteal region. In some cases the referred pains mentioned by Dr. BRUCE may well be attributable to a lesion of the hip-joint, yet even if we acknowledge the arthritic origin of some, or even of many, of the cases of "sciatica" we shall still find many which utterly refuse to be included in any such group. Few, indeed, are the cases of osteo-arthritis

[1] THE LANCET, August 22nd, 1903, p. 511.

which recover completely and yet complete recovery is very usual in sciatica. Dr. BRUCE acknowledges that in the operation of nerve-stretching surgeons have found the sciatic nerve to be swollen and inflamed, but these observations he dismisses as untrustworthy. He appears to deny the existence of any form of neuritis, for he asks, Why should there not be neuritis of such nerves as the ulnar? We can only answer that neuritis of the ulnar is not at all rare. It may arise from alcohol, diabetes, rheumatism, and leprosy; it may result from the taking of arsenic and from several other causes; in fact, we should not have thought that at the present time any physician would have denied *in toto* the existence of neuritis in any form. That inflammation of nerve-trunks does exist has been abundantly shown by histological examinations and there is no *à priori* reason why the sciatic nerve should be specially exempt. One of the main arguments advanced by Dr. BRUCE is that movement often aggravates the pain and that rest is necessary for recovery, but every movement of the hip-joint causes movement of the sciatic nerve and it would be strange if bending did not cause pain to an acutely inflamed nerve. When the inflammation becomes chronic pain will be less marked on movement. To sum up, Dr. BRUCE'S lecture should prove useful in calling attention to the need for greater care in applying the name "sciatica" and for not giving it to all cases of pain in the hip and thigh, for many of these are associated with disease of the hip-joint. His evidence as to the value of rest in treatment should lead to a greater employment of one of the most important therapeutic measures in sciatica. But we hold that he has failed to prove his contention that a true sciatic neuritis does not occur.

The Milroy Lectures on Pulmonary Tuberculosis.

THE publication of the Milroy Lectures of the Royal College of Physicians of London was somewhat delayed in our columns in order that the author, Dr. H. TIMBRELL BULSTRODE, might extend and amplify his work in directions which the limits of time precluded him from following during the delivery of his addresses. As they appeared in our columns Dr. BULSTRODE'S lectures form an excellent summary of what is known as to the causes, prevalence, and control of pulmonary tuberculosis while the free expression of personal views lends attraction to the treatment of the various points.

For centuries past there has been a common belief in some parts of Europe that consumption is an infectious disease and as early as 1782 stringent regulations were enforced in Naples in order to attempt the stamping out of the malady. Dr. BULSTRODE points out that at the present time there may be said to be two schools of thought with regard to the main channels of infection between man and man, the one school maintaining that the greatest danger is to be attributed to the tubercle bacillus contained in the dried sputum, whilst the other considers that there is more potency for harm in the droplets thrown off by a tuberculous patient during cough. The relative merits of these theories invite discussion, but we prefer to follow the question raised by Dr. BULSTRODE as to the actual measure of the communicability of the disease. We perfectly agree with his statement that, while there can be no reasonable doubt that pulmonary tuberculosis is under certain conditions an infectious malady, there can be equally no question that its communicability is of a low order. The testimony of experience, which is a more scientific test, we submit, than the records of certain laboratory experiments, must be sufficient to satisfy all medical practitioners that the communicability of this disease can only be contrasted, not compared, with that of diseases such as small-pox, typhus fever, or whooping-cough. The professional edict has gone forth, however, that "consumption" is an infectious disorder, and has given rise to much misconception in the public mind, which is without proper information upon the degree of infectivity implied. Unless the lay mind is reassured as to this a great deal of undue alarm will be caused and, as a consequence, needless suffering may be inflicted on affected individuals. Dr. BULSTRODE gives examples which have been brought to his notice, the most flagrant, perhaps, being that of a rector who forbade his curate to visit at a sanatorium for tuberculosis because in the rector's opinion the disease was "as dangerous as small-pox." Whilst in no sense disputing the communicability of the disease, we join with Dr. BULSTRODE in pleading for more caution in setting forth the facts to the public, who should be told not only the amount of risk that they run but the best course to protect themselves against that risk. For pulmonary tuberculosis being admitted to be an infectious disorder, the problem naturally arises as to the means to be adopted to prevent its dissemination. The question of notification is a vexed one. We have on the whole sided with those authorities who believe that compulsory notification would not only fail to make any appreciable difference in the incidence of the disease but would tend to have disastrous consequences to the social life of the community. Dr. BULSTRODE suggests that it might, in the first instance, be well to limit notification to cases of pulmonary tuberculosis in which the condition and environment of the patient are such that danger to the public is liable to accrue. In support of this view he quotes Professor KOCH, who, when referring to the subject of notification, said: "Fortunately, it is not at all necessary to notify all cases of tuberculosis, not even all cases of consumption, but only those that, owing to their domestic conditions, are sources of danger to the people about them." This amounts to saying that the general sanitary surroundings of such patients should be notified rather than the disease. We have frequently urged that the chief responsibility for arresting the spread of pulmonary tuberculosis lies with medical men. It is their duty to educate their patients in the precautions which they should adopt to prevent themselves from being a danger to their fellow creatures. Therein lies the preventive medicine of the future. Dr. BULSTRODE speaks in similar terms when he says: "It is in the inculcation of the general principles of health, which include more air, more light, more cleanliness, and generally better housing, that we are pursuing the surest and the best tried road towards success."

At the conclusion of his lectures Dr. BULSTRODE speaks in still stronger terms when advocating practical measures for the control of pulmonary tuberculosis. He would have the older children educated in the principles of health. He would have also periodically the physical examination of all school

children with a view to improving the health of those prone to tuberculosis or who may already be suffering from the disease in an unrecognised though not unrecognisable form. The direct and indirect results which would accrue from this would soon make themselves felt in the direction of an unwillingness on the part of the people to occupy slums or to dwell in places where the sun rarely penetrates, while local authorities would become more alive to the value of public health. Next Dr. BULSTRODE recommends a system of compulsory insurance against sickness and invalidity such as obtains in Germany which, it is important to note, makes for the provision of sanatoriums. Lastly, and most important of all, he places the need for better housing and improved conditions of employment of the working classes—"more light, more air space, better ventilation, and greater cleanliness in the home, the workshop, and the factory." There will not be a dissenter from these views among medical men, while one of the most valuable deductions to be made from Dr. BULSTRODE'S words is that a little instruction to the patients and their friends from practitioners attending cases of pulmonary tuberculosis will have more influence in the prevention of the disease than the enforcement of laws. Legal enactments cannot fail to produce a considerable amount of friction and will cause attempts at concealment of early cases of disease; whereas it is the aim of the medical profession to diagnose cases of pulmonary tuberculosis at the earliest stages, not only on account of the better prognosis which treatment then affords, but also in order to warn others of the danger. A large number of early cases already escape recognition, as the sufferers do not seek medical advice; still more would this occur if it became known that all such cases would be notified. The patients would be afraid that a sort of ban would be placed upon them as being a source of infection, and doubtless such would to a certain extent be the case; whereas a few kindly words of instruction and direction from the medical practitioner would reduce the fear of infection to a minimum.

The Rules of the Central Midwives Board.

THE rules framed by the Central Midwives Board in accordance with the provisions of the new Midwives Act have been approved by the Privy Council and were published in THE LANCET of August 22nd, p. 555. The original draft rules as drawn up by the Board and submitted to the General Medical Council were accompanied by a minority report signed by three out of the five medical members of the Board. It is to be regretted that there should have been so serious a want of unanimity amongst the members of the Board. Many of the rules involve matters upon which only trained medical men can come to a proper conclusion and it is most unfortunate that the views of a majority of the medical members seem to have been overruled in many instances by the votes of the lay members. The Privy Council has, however, with the assistance of the representations of the General Medical Council, made a number of alterations in the draft rules from the form in which they first appeared, and has considerably improved them by adopting some of the suggestions put forward in the minority report. But even in their final form we cannot entirely agree with the regulations as laid down by the Privy Council. Also the new Board has commenced its official career by making what we believe to be a serious mistake. It has determined for some reason which we fail to appreciate to hold its meetings in private. Not only has it decided not to admit the public but we gather that it does not intend to publish its minutes. In view of the amount of opposition amongst many members of the profession raised by the new Act any attempts to throw a veil of secrecy over the proceedings of the Board appear to us most injudicious.

The question of the preliminary education of the midwife is one of some difficulty. The rules state that candidates must satisfy the Board that they have reached a certain standard of general education. No definite standard is, however, laid down, and the objection of the dissentients that unless this is done the passing or rejection of candidates must depend largely upon the caprice of the examiners in different parts of the country seems to us a fair one. Their further contention, that no medical practitioner should be recognised as a teacher by the Board unless he holds an appointment on the staff of a recognised lying-in institution, or has charge of the lying-in ward of a workhouse hospital approved by the Board, is an important one. Improperly trained and irresponsible persons have often taken up the coaching of candidates for the examination of midwives instituted by the Obstetrical Society of London, and failing strict regulations upon the subject there can be no doubt that this practice will increase to a considerable extent. But even supposing the teachers to be all competent, when we consider the range of subjects which are laid down in the syllabus for the examination it becomes doubtful whether the minimum period of instruction—viz., three months—is really sufficient. We should like to have seen the period increased to six months, but no doubt the Privy Council was influenced by the question of expense, since it is imperative that the cost of training should be kept as low as possible. The range of the subjects of the examination is in the case of midwives a difficult matter to determine. The duties of a midwife in regard to her patient cannot be too clearly stated and the limits of what she ought to practise should be rigidly defined. No doubt the midwife should not be allowed to assume that she is at liberty to use all her knowledge in ordinary circumstances; but cases of emergency will arise where, in the absence of medical assistance, a midwife who did not use all her knowledge might well be responsible for the death of the patient. For example, under the subjects of the examination we find "hæmorrhage, its varieties, and the treatment of each," while in the minority report was the statement, "The treatment of hæmorrhage cannot be any part of a midwife's duties." If we are to understand by the word "duties" merely "duties under normal conditions," we quite agree that the treatment of hæmorrhage is removed from the midwives' sphere, but to suppose that in conditions of emergency the treatment of hæmorrhage is no part of the midwife's duty appears to us absurd. While there can be no question but that the midwife should be clearly instructed that she must send for medical assistance whenever hæmorrhage occurs, yet she must be at liberty in a case of urgency—and such

cases are often most urgent—to do whatever she has been taught to do. In a severe case of post-partum hæmorrhage it requires no words to prove that she must do her best till the presence of a medical man relieves her of responsibility. This fact has long been laid stress upon in the examination of the Obstetrical Society of London, and one of the questions most often put to candidates is the correct treatment to be adopted in the absence of medical assistance in grave cases of hæmorrhage. Objections have been raised to the inclusion in the subjects of examination of "the management (including the feeding) of infants," because it is said that this seems to imply that the midwife is to act as a physician in the treatment of infantile diseases and that her duties may extend beyond the ten days of the normal puerperium. We fail to see that any such conclusion can or should be drawn from the paragraph in question. The chief duty of the midwife is to instruct the mother to suckle her child, but to suppose that the midwife is not to know how to feed a baby by hand, in the event of the mother not being able to suckle the infant, is to admit that she will often be even more ignorant than the patient whom she is engaged to attend. And the mother, as a rule, is ignorant enough. One of the most important causes of the enormous death-rate amongst newly born infants in this country is the absolute want of knowledge as to the proper feeding of babies by hand so prevalent amongst the poorer classes. Surely a midwife, of all people, should be instructed in such a subject, and to assume that the management and feeding of infants includes their medical treatment is an unwarranted interpretation of the clause in question.

Shall a midwife be allowed to administer drugs or shall she not? In considering this question it must be remembered that these women will form a class of trained and registered midwives under definite supervision and control—a class of person quite unrepresented in this country at the present time. They will in the near future be on a different plane to the so-called midwife of to-day. The members of the Board who signed the minority report wished to decide that a midwife should not be allowed to give drugs at all. The Privy Council and the General Medical Council have decided that they may, and have drawn up a rule instructing the midwife to enter in a book, with the notes of the case, every occasion upon which she is under the necessity of administering a drug, whether it be scheduled as a poison or not. We think that this is not going too far and that the safeguard is sufficient. It is, however, a point upon which there is sure to be difference of opinion. Considerable exception is taken in the minority report to the fact that the midwife was assumed in various of the draft rules to be in charge of a pregnant woman. That a midwife who is engaged to attend a patient in a confinement will often be consulted by her as to the minor disorders of pregnancy is certain. The dissentients appear to desire that a midwife shall never professionally be in charge of a pregnant woman. Such a contention appears to us to be beyond the range of practicability, although we appreciate the sound professional instinct that would have it otherwise. The Midwives Act having been passed it now only remains to ensure that the midwife is instructed as to what are the complications of pregnancy in which she must recommend her patient to seek medical assistance. These, of course, must be clearly defined, and this is now done. It is definitely stated in the rules of the Central Midwives Board that the midwife must decline to attend in all cases of abortion, of illness of the patient or child, or of any abnormality occurring during pregnancy, labour, or lying-in; whilst the various conditions under which she is to send for medical assistance are given in full detail. Amongst these conditions we notice that a breech presentation in a primipara is now classed. We are glad to see that the recommendation of the minority report has been accepted, and that specific directions are given as to the circumstances in which the midwife must send for medical assistance after delivery, as well as whenever the progress of either mother or child is not satisfactory. In all cases in which the death of the mother or child occurs before the attendance of a registered medical practitioner the midwife is to notify the death to the local supervising authority. She is ordered to do the same in the case of a stillbirth. May we hope that this indicates the possibility of some legislation upon the subject of stillbirths?

To the syllabus of the list of the subjects for the examination of midwives have been added puerperal fever, its nature, causes, and symptoms, the elements of house sanitation, and the best methods for the disinfection of person, clothing, and appliances. Under the heading of rules for notification we find puerperal fever and other infectious diseases. As, however, the midwife must send for medical help on the first appearance of the symptoms of these diseases the onus of notification will fall as it should on the medical man called in. It is hardly correct, therefore, to say, as the dissentients, we believe, maintained, that the onus of notification is laid upon the midwife. A very important addition has been made to the draft rules directing that the supervising authority shall make arrangements to secure an inspection of every midwife's case-book, bag, and other appliances, while if it should be thought necessary her place of residence and her mode of practice can also be made the objects of official scrutiny. These rules are approved for a period of three years. No doubt experience of their working will suggest some further modifications in the future. Although we have taken exception to some of them, yet on the whole they are satisfactory. They should prove a sufficient safeguard to the public by ensuring correct practice on the part of the women for whom they are intended.

Annotations.

"Ne quid nimis."

THE PSYCHOLOGICAL ASPECT OF THE HUMBERT CASE.

THE trial of the notorious Madame Thérèse Humbert and her accomplices, which was concluded before the Paris Assize Court on August 22nd, when the prisoner was found guilty of forgery and swindling and sentenced to a term of five years' imprisonment, has a psychological interest special enough to warrant a recapitulation of her oft-told tale. Thérèse Humbert was a person of humble origin, her parents were peasant farmers, and the education which she received in childhood was slight, consisting of the bare elements of reading and

writing. She was essentially an illiterate person and could with difficulty sign her own name. But from childhood she seems to have manifested a peculiar aptitude for inventing romances about treasures and secret documents and to have succeeded in making others, especially her two brothers, Emile and Romain, believe in her statements. Of a seclusive and secret disposition, she avoided association with playmates, was given to romantic schemes of building castles in the air, and is said even at the early age of 11 or 12 years to have pretended to carry about with her concealed in her corset "documents" of great value. At the age of puberty symptoms of marked hysteria were observed, the most striking feature being the facility with which she invented tales and romances of the most incredible type, a trait which has been aptly designated by Deelbruck as the *pseudologia fantastica* of hysterical subjects. She was then a poor girl, without any prospect of a fortune except such as her own vivid and disordered imagination was already conjuring up. The seeds of a morbid delusion of wealth, however, soon began to germinate, and this extraordinary girl seems to have made her two brothers her first converts. The history of Thérèse Humbert since then has been partly disclosed by the events of the trial. The Humberts left their home in the country and moved to the towns—to Lyons, to Paris, and to other places. Here from time to time they succeeded in raising loans from local tradesmen, at first on a small scale. But their wealth seemed to grow by bounds year by year, and early in the course of this career of fraud and swindling the romance of the Crawfords was invented by her. Crawford, senior, whom she said she had nursed through an illness, was alleged to have left her a large fortune in the shape of bank-notes and of bonds and securities (French and American) to the extent of many millions of dollars. The subsequent development of the drama, the great safe supposed to contain the millions, and the whole story of intrigue, of fraud, and of swindling, furnishes a startling comment on the wickedness of the woman and on the credulity of her dupes. A crowd of parasites basked in the blaze of wealth and splendour which surrounded the Humberts; bankers, moneylenders, merchant princes, deputies, and statesmen—all were counted among her visitors and guests. But the nemesis of time and the hand of justice overtook her and after "20 years of brigandage," as the Attorney-General of France put it in his speech for the prosecution, Madame Humbert was brought to her deserts. The curious delusions of the woman persisted at the trial. To the last she exclaimed, "But the fortune exists." Alienists tell us that in many of the minor forms of hysteria and of insanity with mental "obsessions" the patient may after a time, from repetition and recurrence of the delusion or obsession, come to believe in it as real. The exact psychological process involved in this transformation of an incipient delusion into a firm belief is obscure, but the fact remains that such a development often takes place. In Thérèse Humbert's case it took place early in life while she was quite a young woman. But the additions made by her from time to time to the story, the invention of the millionaires and especially of the elder Crawford as the *deus ex machinâ*, the verisimilitude cast around the whole fabric of chicanery by the famous safe, by forged telegrams, by the pompous show of wealth and influence, and by lies systematically and unscrupulously invented to bolster up the wavering faith of her dupes, constitute one of the most monstrous deceptions that has come within the cognisance of the present generation. Hysteria produces its saints and its sinners, and while history has given us a shining example of piety and godly life in Saint Theresa, a woman who, though afflicted with hysteria in its gravest organic form of hysterical paralysis and contractures, upheld the light of a pure and blameless life to all, it has also given us in Thérèse Humbert a terrible example of the criminal side of human nature complicated with hysteria.

THE RELATION OF THE THYMUS GLAND TO MARASMUS.

IN another column we publish a paper on the Relation of the Thymus Gland to Marasmus by Dr. John Ruhräh, clinical professor of pediatrics, College of Physicians and Surgeons, Baltimore, which was communicated to the recent meeting of the British Medical Association. Dr. Ruhräh has made a special study of the pathology of infant life, especially in regard to cases of marasmus. From his researches he concludes: (1) that atrophy of the thymus gland is always found in cases of infantile atrophy; (2) that the condition of the thymus is an index of the general nutrition of the infant; and (3) that the state of the nutrition in infants may be estimated by a microscopic examination of the thymus at the necropsy. These observations are interesting and suggestive, and if they do not advance to any great degree our knowledge of the pathology of marasmus we may hope that they will stimulate other observers, so that more information on a most obscure subject may be put on record. Dr. Ruhräh asserts that the condition of marasmus is not due to the amount of food ingested nor to the amount absorbed from the intestinal tract, but that it is due to the mal-assimilation of the food material in the body. Then he adds: "Whether the thymus gland has anything to do with assimilation or not we are not prepared to say, but it is certain that the thymus gland bears a direct relation to the state of the nutrition of the body." It will be thus observed that he fails to draw a sufficiently plain line between cause and effect. Is the atrophy of the thymus gland the cause of marasmus or the effect? He further urges that cases of marasmus should be divided on a pathological rather than on a clinical basis—namely, into those where there are lesions of definite diseases and those where there are no special and constant lesions except the wasting of the muscles and the body fat and (according to Dr. Ruhräh) of the thymus gland as well. Many of the cases occurring under the latter heading will doubtless be found to be due to improper food and care, and are probably to be attributed to maternal ignorance rather than to primary atrophy of the thymus gland. But Dr. Ruhräh makes out a good case for the more careful post-mortem examination of the corpses of infants in view of the fact that the actual cause of death is so often undiscovered.

PUNISHMENTS FOR SPREADING INFECTION.

IN two cases which were heard by magistrates recently fines were inflicted on persons who had caused the risk of infection to others with more than usual recklessness, for in both cases ample warning had been given to them. In the one a woman was prosecuted by the Rhondda urban council for taking her child when suffering from scarlet fever out of her house in defiance of a notice served upon her by the sanitary inspector forbidding her to do so. It was stated in evidence that there had been further cases in the same street and the mother was fined £2. The second case will strike many as being more serious as the disease was small-pox and the fine, which was one of 10*s.* with costs, may hardly seem adequate when compared with the other. The defendant, however, was a hawker living in a lodging-house and no doubt in his circumstances the penalty was a substantial one. The prosecution took place in the Halifax borough court and evidence was given that the defendant was sufficiently conspicuously infected with the disease for a caretaker at the market which he attended to have pointed it out to him as well as other persons with no medical training. He continued, however, to ply his trade until the manager of

the model lodging-house where he lived reported the case and he was removed to an isolation hospital. His defence to the charge was a flat denial of the truth of the evidence and of the fact that he had had a rash visible upon him, although a medical witness stated that it must have been observable for two or three days before the authorities were informed. To this the defendant added that he had his living to get—a reason which must always win sympathy for those to whom illness may mean very considerable loss, but which should also cause magistrates to remember those other persons in poor circumstances to whom illness is no less serious than it is to the man or woman who exposes them to the danger of it. Here is a case in point. At Newcastle-upon-Tyne police-court on August 18th a man named John Cockburn was charged with having on July 21st and 22nd unlawfully and wilfully exposed himself while suffering from a dangerous infectious disorder—to wit, small-pox. He was a journeyman tailor and evidence was given that he came to work on June 29th with spots on his face. For some three weeks he went about without any precautions but was eventually sent to the small-pox hospital. On the two counts defendant was fined £7 and costs or one month and seven days' imprisonment. The master tailor in whose shop Cockburn had worked caught the disease and died from it, the source of infection being presumably Cockburn.

INSANITY AND THE JUDICIAL POINT OF VIEW.

IN the *New York Medico-Legal Journal* for June Dr. Herman Kornfeld of Gleinitz, Silesia, calls attention to the fact that in Germany, as in England and America, jurists and psychiatrists view the insane from widely different standpoints. For psychiatrists hold that the insanities are diseases or affections of the brain, while jurisprudence, considering only the psychical side of the question, considers that the responsibility of the alleged lunatic should be judged from his conduct and from his ability to know right and wrong in criminal acts. When a diseased or abnormal condition of the brain is proved to exist, says Dr. Kornfeld, the medical testimony of an expert should have preponderating weight, as this is a matter which cannot be controverted by lawyers or psychologists. But as pathological anatomy is far from perfect, especially as regards the morbid conditions of the brain which result in insanity, the proper expert to decide whether insanity may really be present or not is not the general practitioner but the specialist who combines the knowledge of general medicine with the special knowledge of the diagnosis and pathology of insanity. Difficulties are met with, however, as to the interpretation of symptoms. Thus the delirium of many fevers is undoubtedly a "phrenopathy"—a mental disorder—though the duration may not be more than a few days or hours. "Is there then," inquires Dr. Kornfeld, "no fundamental difference between febrile delirious insanity and, for instance, paranoia supervening quite unforeseen, not accompanied by any bodily symptom and not showing post mortem any change in the brain which could account for the insane delusions of the patient." The theory that the brain must always be the seat of disease or disorder before madness can manifest itself is, adds Dr. Kornfeld, justified in most but not all cases, for our methods of detecting abnormalities and lesions of the brain are still imperfect; but for legal purposes the theory is unimportant. The Civil Law of Germany in force since Jan. 1st, 1900, declares that those persons cannot transact valid business or make a will whose mind is clouded by morbid disturbance of its functions (or faculties) at the time, whether such morbid disturbance be temporary or lasting in duration. Moreover, any person who by reason of disease of mind (insanity) or feebleness of mind (imbecility or idiocy) is incapable of conducting his affairs can be put under guardianship of a relative and during such period of guardianship he is to be regarded with reference to contracting capacity as equal to a minor seven years of age. He is only responsible to a limited extent for damages done to others. The expressions "insane" and "feeble-minded" are thus in law of an essentially legal nature. The expert is asked by the judge "to what degree does the abnormal state of mind affect the capacity for conducting affairs?" And this degree, not the character of the cerebral or mental disease of an idiot, a paranoiac, or a maniac, will determine which of the two conditions, insanity or feebleness of mind, is to be declared as existing in the case. It is obvious, however, adds Dr. Kornfeld, that the desire of the law to protect the feeble-minded has here been secured only with a sacrifice, and that this could have been obviated by dividing the feeble-minded into two classes: first, those who are feeble-minded to a degree equalling insanity as regards incapacity for conducting affairs; and secondly, those of a minor degree of enfeeblement in whom a restricted capacity for business is found. Insanity affecting a limited part of the mind—e.g., in the form of a fixed insane belief or delusion—may induce a person to make an unjust will or to damage others, but when such a person appears to have been in all other respects sane, when his motives do not differ from those of normal people in similar circumstances, and when he, notwithstanding his apparent "partial insanity," has managed his affairs reasonably, it might be argued that his soundness of mind was practically that of the average or normal man. For many persons of sound mind have fixed errors of belief and of sentiment, though their soundness of mind is unquestioned. The theory "the lesser the guilt the lesser the punishment," says Dr. Kornfeld in agreement with other psychiatrists, is a false one, and in conformity with it he holds that psychiatry has to take the lead in laying the foundation for entirely new penal laws. It is not for vengeance, he concludes, that evil-doers should be punished but because of the necessary satisfaction to every honest man that crime should be avoided and abhorred, as its consequences are just and inevitable. The insane criminal should be sequestrated, for life if necessary, in an asylum, so that his power for evil is abolished.

THE CARDIAC REFLEX OF ABRAMS.

IT has recently been shown by Abrams that if the præcordial region is stimulated by friction or light percussion the cardiac dulness diminishes in consequence of reduction of the volume of the heart (*Medical Record*, Jan. 5th, 1901). This phenomenon, which he termed "the cardiac reflex," is important because it throws considerable light on the modern treatment of heart disease by baths. At the meeting of the Société Médicale des Hopitaux of Paris on July 24th M. Pierre Merklen and M. Jean Heitz read a valuable paper on this reflex and both confirmed and extended Abrams's observations. They found that the reflex was of variable intensity, almost always present in health, and more marked when the heart is dilated. Abrams provoked the cardiac reflex by energetic friction of the præcordium with a piece of indiarubber, producing intense redness of the skin, but M. Merklen and M. Heitz had recourse to light percussion with the ulnar border of the hand for from one to five minutes. The skin first becomes pale at the places stimulated, then it becomes red more or less rapidly. These superficial reactions were accompanied by a deep reaction—diminution of cardiac dulness. Abrams showed by radioscopy that this diminution coincided with diminution in the volume of the heart. The superficial dulness is most reduced, the deep only slightly. Hence the reduction of volume of the heart is principally at the expense of the right ventricle which corresponds to the

superficial cardiac dulness. The right ventricle is the most dilatable and the most contractile part of the heart. If in consequence of dilatation of the right heart there is passive congestion of the liver the hepatic dulness will simultaneously diminish with the reflex diminution of the cardiac. M. Merklen and M. Heitz found the cardiac reflex absent in health only once, in a man, aged 32 years, given to athletics. Abrams has remarked that the reflex is more easily produced in children and in subjects with little adipose tissue and slightly developed thoracic muscles. It is more transitory in healthy persons than in those with dilated hearts. In the former it lasts scarcely two minutes, in the latter it may be prolonged for several hours. In cardiac neurasthenia it is well marked. The cardiac reflex may be temporarily absent in extreme cases of dilatation of the heart. It was absent in a woman with a systole, enormous cardiac dilatation, cyanosis, and much anasarca, but when she was relieved and diuresis established it returned. The cardiac reflex is permanently absent in pericardial effusion and in adhesion of the visceral and parietal pericardium. Hence the presence of the reflex in cases of difficult diagnosis enables these affections to be excluded. Finally, it is permanently absent, or almost absent, in profound degeneration of the myocardium and may thus be of prognostic import. The cardiac reflex is a similar phenomenon to the reduction of cardiac dulness produced by stimulation of the skin with saline effervescent baths. A reduction of cardiac dulness is also produced by exercises. Heitler of Vienna has produced it not only by stimulation of the præcordium but also by stimulation of the hepatic region and other parts and even by movements of flexion and extension of the joints. Thus the cardiac reflex may be produced by stimulation of the most diverse regions, but it is most marked and most constant after stimulation of the præcordium. The action of stimuli arising from the skin and viscera on the vaso-motor nerves and the consequent changes in size of the arteries and veins are well known. The heart evidently is susceptible to the same stimuli. Hence "the cardiac reflex."

THE ABSINTHE EVIL.

WHILE it is generally recognised that the influence of absinthe upon the human body is pernicious there has hitherto been some doubt as to the respective parts played by the alcohol which forms the basis of the fluid and the derivatives, such as of wormwood, angelica, and fennel, which give it its peculiar character. In France the law prohibits the sale of dangerous essences. Some importance therefore attaches to the researches conducted in the physiological laboratory of the Sorbonne by Dr. S. D. Lalou and published in his "Contribution à l'Etude de l'Essence d'Absinthe et de Quelques Autres Essences." Experiments were made on dogs and other animals and the preparations to be tested were administered in various ways. The results obtained were substantially the same in all cases and as the method most frequently employed was to introduce the material, mixed with a little yelk of egg, sugar, and water, into the stomach of the dog by means of an œsophageal tube, it will suffice to speak only of the toxic effects so produced. The first symptoms observed were agitation and restlessness, the animal wandering about and eating fragments—e.g., of paper, which were lying on the floor. Convulsions of transient character supervened, leading up to a definite epileptiform seizure in which the animal bit its tongue, foamed at the mouth, and passed its excretions involuntarily. Similar fits followed at intervals and were accompanied by vomiting and unconsciousness. After a time the dog returned to consciousness and gave evidence of suffering from hallucinations, sometimes wounding itself, adopting an attitude of defence, or exhibiting great fear. Sometimes it became very aggressive, barking with a menacing air, and finally precipitating itself upon an imaginary enemy. With a moderate degree of intoxication three or four epileptic attacks would occur. Finally a condition of stupor was reached, succeeded, if too large a dose had not been given, by recovery. The conditions above described were brought about by using the essences which manufacturers mix with spirit of suitable strength to form absinthe, so that alcohol was not in any way responsible for them; indeed, alcohol by itself merely gave rise to slight agitation rapidly passing into coma. When the essences were given in small doses for long periods so as to produce chronic poisoning the dog was found to lose weight and appetite, to develop tremor and weakness of the posterior extremities, and to suffer from gingivitis, buccal ulceration, albuminuria, and hæmaturia, while mentally it became stupid and ill-tempered. It would seem, then, that to the evils of simple drunkenness, surely sufficiently potent, there is often added in France the disastrous influence of a powerful nerve poison. That this was so has always been assumed by observant persons, medical and lay, but Dr. Lalou's experiments prove the assumption. They may therefore become very valuable to the community, for their lessons can be used by the law as arguments upon which to base legal prevention of the grave physical and moral evils due to the drinking of absinthe.

STUDIES RELATING TO THE QUESTION OF IMMUNITY IN THE HUMAN MOUTH.

Dr. W. D. Miller, professor of dental surgery in the University of Berlin, has during the last few months published[1] an account of some preliminary studies of immunity in its relation to the diseases of the mouth and the teeth. His results, although negative, are of interest, inasmuch as they will help to clear the pathway for future investigations. A large number of experiments were undertaken with regard to the antiseptic action of the saliva. Dr. Miller refers to the work of various investigators in this direction and points out that the views expressed have been very diverse. In Sanarelli's experiments, which for many years were considered to be conclusive, he considers that a source of error was in the removal from the saliva of the greater part of the nutrient matter, thus rendering it unfavourable for the development of bacteria. To overcome this source of error Dr. Miller experimented with saliva filtered through porcelain to which he added a solution of bouillon. The salivas of individuals immune to caries and susceptible to caries were subjected to investigation, with the result that he was unable to determine any retarding influence whatever on the part of the germ-free saliva. In caries of the teeth the numbers of the bacteria have not so much to be dealt with as their potency or capacity for bringing about processes of fermentation. With a view of determining whether the saliva had any influence in the production of acid a series of experiments was carried out with a mixture of four parts of filtered saliva to one part of bouillon (five-fold strength). The salivas of different individuals were again used with the result that as much acid was formed in the tubes in which the bouillon was diluted with saliva as in those in which it was diluted with water—in other words, 80 per cent. solution of saliva does not seem to exert a retarding influence on the process of fermentation. Undiluted saliva gave similar results. A series of control experiments with non-filtered saliva was next undertaken. The difficulty of obtaining saliva free from bacteria was overcome by experimenting with bacteria which develop rapidly at the temperature of the room, Dr. Miller maintaining that as the bacteria normally present in saliva

[1] Dental Cosmos, January and February, 1903; Transactions of the Odontological Society of Great Britain, March, 1903.

do not develop at the temperature of the room they would have no disturbing influence on the development of bacteria growing at lower temperatures. The organism chosen for the experiments was the bacillus prodigiosus and the results showed that the saliva had no retarding influence on the development of that organism. Some interesting experiments with equine saliva compared with human saliva were recorded, the formation of acid in the case of equine saliva being much less than in human saliva. Having sought in vain for antiseptic properties in the saliva as a whole it seemed scarcely probable that any of its constituents in the amount usually present would possess any bactericidal properties. By some it has been supposed that sulphocyanide of potassium does possess antiseptic properties; for instance, Michel[2] considers that this salt is a natural protective against caries. But Hugenschmidt[3] considers that its antiseptic action in saliva is exceedingly weak, if not utterly wanting. Dr. Miller's investigations would seem to bear out Hugenschmidt's contention. Observations on the action of the buccal mucus showed that more intense fermentative action occurred in saliva containing large quantities of mucus than in the saliva of the same person compartively free from mucus. A long series of experiments was undertaken to determine whether there is any difference in the intensity of processes of fermentation in the saliva of persons immune to caries and in that of those highly susceptible to caries. Dr. Miller was unable to find in the saliva itself any factor which gave a satisfactory explanation of the immunity in the one case and the susceptibility in the other. He did find, as a rule, that the saliva of immune persons produced less acid by fermentation in a given time, especially in the first 24 hours, than did the saliva of susceptible persons. The difference, however, was not constant and in some cases the saliva of highly susceptible persons produced less acid than did that of a comparatively immune person. An endeavour was made to determine whether fresh saliva contains bactericidal substances analogous to the alexins of the blood but with negative results; Dr. Miller thinks, however, that the saliva may be able to neutralise toxic substances formed in the mouth and to render them innocuous. The researches of Wehrmann[4] support this view as this observer found that the ptyalin of human saliva mixed with a quantity of snake poison, which would otherwise prove fatal in a very short time, rendered it completely harmless. Dr. Miller indorses the view held by Goadby that the struggle for existence probably performs an important rôle in protecting the mouth against the invasion of certain pathogenic micro-organisms; he also is in agreement with Hugenschmidt in considering that phagocytosis plays an important rôle in oral immunity.

WORKHOUSE MASTERS AND MATRONS.

THE dissatisfaction felt by certain workhouse officials with the report of the Departmental Committee on the Nursing of the Sick Poor in Workhouses has found expression in the form of an earnest though somewhat confused memorial addressed to the President of the Local Government Board by the National Association of Workhouse Masters and Matrons. The document supplies no valid reason for disagreement with the Departmental Committee's recommendations. According to par. 2 it has only been sent "under constraint of duty," but further on we learn that "masters and matrons think they have distinct grievances," and we judge from the general tone of the missive that this has been the more powerful motive. "Masters and matrons" we are assured "have peculiar opportunities of forming a sound judgment on the proper nursing of the sick poor in workhouses from an inside position and they feel constrained at this juncture to use whatever influence they may have with the Local Government Board, for the interests of all concerned, on the side of maintaining the present *status quo* as fixed by the Nursing Order of 1897." With this claim to special knowledge the Departmental Committee is not, apparently, in sympathy, for in several passages of its report it distinctly discourages the interference of masters or matrons with the work of caring for the sick. This exclusion from the wards and consequent loss of authority is the chief bone of contention, and yet the proceeding is reasonable enough where the matron has had no training in nursing. Objection is also taken to the attempt to remove from the control of workhouse masters the granting of leave to certain officers. In the opinion of the memorialists "a direct result of the adoption of the committee's report would be a falling off in the character and calibre of the aspirants for the office of master and matron." We do not think the prospect is really so alarming; at all events the condition upon which depends the status of masters and matrons is primarily the amount of payment they receive and there is no suggestion that their salaries will be diminished. It is quite time that such officials should recognise that the old order changeth—even if it is a nursing order of the Local Government Board. Whether rightly or wrongly, the State is now trying to make the best of its paupers and to that end it requires the intelligent coöperation of educated and trained minds. For this reason the conflict between masters and medical officers or between matrons and superintendent nurses can only have one issue. There is plenty of evidence that a medical man can do administrative work as well as or even better than a master, while the latter is quite incompetent to undertake the duties of the medical officer, though he does not always appear to realise the fact. Similarly a trained nurse is more likely to be an efficient administrator than a workhouse matron. We do not, of course, refer here to the matrons of the Poor-law infirmaries who are usually themselves nurses. Friction occurs because it is not in human nature that a man who has acquired a medical qualification as the result of much expenditure of time and money should be content to be subordinated to one who is, however estimable a man in other respects, of lower social standing; yet this relation is common enough under the present system. The case of matron and superintendent nurse illustrates the same difficulty. Masters and matrons of the old-fashioned kind have, in fact, played their parts and new factors will be taken into consideration in future in making these appointments.

THE DISPOSAL OF EMBRYOS.

A NOTE contributed by our Paris correspondent to THE LANCET of August 22nd, p. 563, described the state of the law of France with regard to the disposal of embryos in that country. The regulations imposed are characterised as sadly lacking in precision and clearness and the varieties of practice to which they give rise and of which instances are given would be mildly described as unsatisfactory. It would be impossible, however, to claim for the law of England any marked superiority in respect of this particular subject. The registration of births and deaths is governed in this country by an Act of Parliament passed in 1874 which throws upon a considerable number of persons in both cases the duty of providing the registrar with information. With regard to the still-born child no registration of the delivery is required; it figures neither as a birth nor as a death and the only record required to be made is that of the burial. Certain restrictions are imposed upon this, mainly with a view to prevent the burial of children who have been born alive as if they had been still-born. The section dealing with the matter does so in these terms:—

[2] Deutsche Monatsschrift für Lahnherkunde, 1902, p. 217.
[3] Dental Cosmos, October, 1896.
[4] Annales de l'Institut Pasteur, 1897, tome xii., p. 510

A person shall not wilfully bury, or procure to be buried, the body of a deceased child as if it were still-born. A person who has control over or ordinarily buries bodies in any burial ground shall not permit to be buried in such burial ground the body of any deceased child as if it were still-born and shall not permit to be buried, or bury, in such burial ground, any still-born child before there is delivered to him either (*a*) a written certificate that such child was not born alive, signed by a registered medical practitioner who was in attendance at the birth or has examined the body of such child; or (*b*) a declaration signed by some person who would, if the child had been born alive, have been required to give information concerning the birth to the effect that no registered medical practitioner was present at the birth, or that his certificate cannot be obtained and that the child was not born alive; or (*c*) if there has been an inquest an order of the coroner.

The persons required to give information concerning a birth include each person present at the birth, so that in cases where no medical man has attended the declaration spoken of is frequently made by a midwife, and may be made by someone else more directly interested in the matter. This system has naturally led to abuse and danger, and although in the case of midwives the Midwives Act, when it comes into active operation, may effect an improvement, it can readily be seen that a very important question is frequently left to depend upon the uncorroborated statement of ignorant, interested, and practically irresponsible persons. In France, as our correspondent informs us, in the case of a legitimate birth, where the fœtus has arrived at or near the full term, the body is usually and lawfully interred in a burial ground. In the case of an illegitimate birth, or of an embryo of less than four and a half months, it is otherwise, the privy in the latter case, at all events, providing a very undesirable mode of disposal. In England the law, as far as we are aware, takes no cognisance of any difference between a fœtus which has arrived at or near term and one which has not. For the purpose of a prosecution for concealment of birth it has been held that an embryo of four or five inches long was the dead body of a child. This, however, may fairly be said to be a matter of theory rather than of practice, and the disposal of the fœtus of less than four and a half months is not often likely to figure in public statistics. With regard to the still-born body which has arrived at full term the practice no doubt varies in urban and rural districts and according to circumstances. The fact of birth is not recorded nor is death during or before birth the concern of any public official. Burial is subject to the formalities which we have described, the "secret disposition" of the body being punishable as a misdemeanour. As far as children are concerned whose safe arrival in the world is desired, these precautions are no doubt sufficient. The importance of the question, however, lies in the fact that to many expectant mothers the advent of a child is by no means welcome, and even in cases where there is no temptation to conceal the birth there may yet be a strong desire that the infant should not survive. In the case of a child who has been born alive and has died a medical man has to give a certificate of the cause of death, and if he does not do so the registrar and the coroner share between them the responsibility of deciding as to the burial. The still-born child ifnot "certified" as such by the medical man may be "declared" not to have breathed or shown any sign of life after birth by someone having no medical training whatever. The past 30 years have wrought considerable changes in the numbers and distribution of our population, and this and other circumstances render the revision of the law relating to the registration of births and deaths an urgent necessity, a view which our readers know that we have placed before them frequently. When any change takes place considerable attention will have to be given to still-births, the facilities for crime and immorality for which a lax system is responsible being very serious.

THE SUPPLY OF DIPHTHERIA ANTITOXIN.

THE value of antitoxin in the treatment of diphtheria increases as is well known the earlier the period in the disease at which it is used. This being so it is of great importance that a supply of diphtheria antitoxin should always be available for medical practitioners who have occasion to require it. Many municipalities have undertaken to supply antitoxin as part of their sanitary department and in most instances antitoxin can be obtained at the offices of the medical officer of health at the town-hall. In provincial districts, however, it has been found that delay often occurs, especially when the town-hall is closed, as on bank holidays, Saturday afternoons, Sundays, and at night. The Sanitary Department of the Borough of Richmond, Surrey, has got over this difficulty by means of the kind coöperation of the committee of the Richmond Royal Hospital. This committee has allowed a small quantity of anti-diphtheritic serum to be stored at the hospital for the convenience of medical practitioners of the borough and they have arranged that upon a written or personal application of any medical practitioner in the borough such serum as required will be supplied at any hour, day or night. A circular has been sent to all the medical men in the borough by the medical officer of health informing them of this arrangement and quoting the precautions to be observed when using the serum. The circular also reminds medical men that specially prepared tubes and boxes are kept at the Public Health Department for obtaining and forwarding specimens of blood and the like for the bacterioscopic examination of suspected cases of both diphtheria and enteric fever, the expenses of these examinations being borne by the corporation. We are glad to see that the health committee of the borough of Richmond is so alive to the advantages which accrue to both patients and the body politic in general from a rapid diagnosis and treatment of infectious disease. Prevention even more than cure is what the health committee of any borough should aim at, and the more rapidly cases of disease are recognised and treated the less likelihood is there of such disease spreading.

TUBERCULOSIS OF THE MAMMARY GLAND.

To the *American Journal of Medical Science* for July, 1898, Dr. Scudder contributed an exhaustive article on Tuberculosis of the Mammary Gland in which he stated that an examination of the literature showed only 80 cases reported up to that time, 23 of which were rejected on account of imperfect data. In the *Journal of the American Medical Association* of August 1st of this year appears a paper on the same subject by Dr. A. H. Levings of Milwaukee. An interesting summary is given of the pathology and morbid anatomy of the affection, the symptoms, diagnosis, and treatment, together with the reports of seven cases. It is conceded that tuberculosis of the mammary gland is most frequently found in young women between the ages of 20 and 35 years—that is to say, during the period when the gland is functionally most active. A few cases have been reported before and after menstrual life and the condition is occasionally observed in males. The clinical picture presented by a tuberculous process within the breast is a variable one. It naturally depends largely on the stage of the disease during which the examination is made, on the number of foci primarily infected, and also on the fact as to whether the process is primary or secondary. Attention may first be called to the condition by pain which is usually an early symptom. Not infrequently, however, pain is scarcely noticeable and the appearance in the breast of a node or nodes is the first sign noticed. These nodes are rather hard, not very sensitive, and quite irregular. They cannot be distinctly separated from the glandular structure and generally vary in size from that of a hazel-nut to half an inch or one and a half inches in diameter. They are distinctly separated from one another but lie in the same quadrant of the gland. The fact of the nodes being multiple is characteristic. The breast as a rule is not enlarged and on simple inspection nothing may be seen. The axillary glands during this early stage are

enlarged and can be felt on palpation. As the condition progresses the nodes increase in size, though very slowly, possibly coalesce, become more elastic, and finally impart a sense of fluctuation. They may become adherent to the skin and the contents of the abscess may be discharged through a fistulous tract. While ordinarily the breast is not enlarged during the first stage of the disease, later, if pus is formed, the gland becomes noticeably enlarged. The nipple is frequently retracted. Dr. Levings concludes that tuberculosis of the mammary gland is not an infrequent condition but one which goes unrecognised, and he further believes that the condition is more often primary than has been generally supposed. He is, perhaps, correct in his suggestion that many of the cases of chronic mastitis and many chronic abscesses of the breast are really tuberculous. It would be interesting to have a bacteriological examination made of such cases in order to ascertain the truth of this theory.

MEDICAL ATTENDANCE AT ISOLATION HOSPITALS.

THE importance of providing adequately for the medical treatment of patients who are inmates of isolation hospitals has recently received illustration in a somewhat unpleasant fashion at Folkestone. Attention was drawn to the circumstances by the prosecution of a Londoner whose child had apparently contracted scarlet fever during a stay in Folkestone and who had refused to pay the charges made for medical attendance upon the patient. It appears that the corporation provides no medical attendance for the patients at the hospital, each inmate being expected either to employ his own medical attendant or presumably to dispense with medical attendance altogether. In the present instance the father of the patient having been charged for maintenance at the rate of two guineas per week refused to pay the fee of the medical attendant. Needless to say, judgment was given for the plaintiff. But this notwithstanding the judge strongly condemned the action of the corporation in providing a hospital without a medical staff, and it seems from the evidence of Dr. A. E. Larking that there have been cases in the hospital which, save for the charity of medical men, would have been entirely without medical advice, and the same witness added that the medical profession in Folkestone were by no means satisfied with the present state of affairs. Certainly we agree with His Honour Judge Sir W. L. Selfe that the matter is one to which the attention of the Local Government Board should be called. Possibly that Board might take up the position that it had no power to intervene in the detailed administration of an isolation hospital, and if this is the case it is eminently desirable that the necessary power should be bestowed upon the Board by statute. The accounts which have reached us as to the Folkestone case are insufficient to enable us to understand the precise nature of the administration at the hospital. We cannot believe that the corporation, having provided a hospital and a nursing staff, is content to leave the medical administration of the institution to the several medical practitioners who are called in from time to time to attend the patients, or that they would allow a patient to dispense with any medical supervision whatever were he thus inclined, or did his finances not allow him to pay the necessary fees. Surely there is some general professional control over the institution—i.e., a control which arranges the wards into which patients are to be sent and which sees that the formalities as regards the necessary certificates relative to the nature of the malady are rigorously observed. It is better, both in a moral and in a preventive sense, to have no hospital at all than to provide one in which careful medical supervision is not exercised. It is obviously desirable that those patients who wish it, and who can afford it, shall be able to procure the attendance of their own medical adviser, but it is also necessary that in addition to this there shall be a general supervision over the hospital administration exercised by a medical superintendent who may or may not be the local medical officer of health. As regards paupers who are suffering from infectious disease, it devolves upon the local board of guardians to provide both for their isolation and their treatment, but in the case in question no plea of poverty was lodged. The defendant had clearly an acquaintance with the admirable system of isolation accommodation which obtains in the metropolis, and while stating that the Folkestone incident had cost him £30 he added that a similar experience in London would have entailed an expenditure of less than 30*s*. But in this case it has to be borne in mind that the patient would have gone to one of the rate-supported hospitals of the Metropolitan Asylums Board where every necessity and some luxuries are provided free of charge. Had he sent his son to the London Fever Hospital which is largely supported by voluntary contributions he would not have escaped quite so cheaply. But the Folkestone case, if it has been correctly reported, should be carefully investigated, as maladministration at one fever hospital deals a serious blow at isolation accommodation as a whole, and a borough of the importance of Folkestone should aid rather than hinder sanitary progress.

THE NATIONAL SOCIETY FOR THE PREVENTION OF CRUELTY TO CHILDREN.

THE last report of the National Society for the Prevention of Cruelty to Children is a record of progress and success. Fifty new centres of work have been established and the number of these now in operation amounts to 900. As was to be expected in the circumstances more cases of cruelty have been brought under notice, the increase being 2159 over the previous year's total. Notwithstanding this increase the percentage of prosecutions has fallen from 8·7 to 8·2. It is further interesting to note that the proportion of cases of violence has diminished also. From every point of view these facts are encouraging. They go to prove, indeed, the widespread existence of cruelty, but they also show that much of it is remediable and justify the method of the society which prefers to educate and to warn wherever it can thus attain its purpose, and reserves its powers of legal repression as a last resource. Financially the position of the society has improved. Its income is greater by £2381 as compared with that of the preceding year, and though its expenses have risen likewise there remains a surplus in hand of £266. The general plan of the society's operations to which we have briefly referred is too well understood to call for further explanation. Certain of its recent arrangements are nevertheless worthy of more than passing comment. In dealing with that form of cruelty which consists in neglect on the part of drunken parents a special mode of procedure has been adopted. Some 120 intemperate parents have been placed in retreats for inebriates, but the means employed for their reclamation do not end here. During this period of enforced sobriety they are kept informed of the improved condition of their children and are thus enabled to convince themselves of the advantages of abstinence. When liberated on licence or otherwise their after-care is, with the consent of the authorities, entrusted to agents of the society who practically exercise the functions which in cases of a like sort not associated with cruelty are discharged by the police, with this difference that they are able to render assistance in a more intimate and sympathetic way and to induce the relatives and friends of the former inebriates to coöperate in their work. It is still, of course, too early to judge of results, but there can be in our opinion no reasonable doubt that this method, if persisted in, gives better promise of success than any other which depends on the action of restraint alone. It recognises as

the soundest principle in the treatment of such cases the necessity of awakening hope and will power, and of confirming a purpose of reform in the mind which has allowed itself to be mastered by appetite. Even such a condition as this is capable of emancipation if only the will can be enabled to operate upon it. This, we believe, is the only mechanism of recovery in the case of the drunkard.

THE PREVALENCE OF SMALL-POX.

THE Local Government Board for Scotland intimates that during the period from August 1st to 15th inclusive 3 cases of small pox have been reported to them—viz., 2 from the burgh of Dundee and 1 from the burgh of Port Glasgow.

THE DISAPPEARANCE OF MISS HICKMAN.

UP to the present time nothing has been heard of Miss Hickman, M.D., whose disappearance we mentioned in THE LANCET of August 22nd. It is little use to speculate upon what may have happened; the communications to some of our contemporaries on the subject show too well where guessing upon no basis whatever may land presumably reasonable persons. Our hope is that the disappearance may be due to that curious condition of mentality which leads to "automatic wandering"—a condition that is perfectly familiar to psychologists. An account of an interesting manifestation of automatic wandering is given in our columns this week by Dr. W. S. Colman, and it seems possible that Miss Hickman's mysterious disappearance may supply another example. If so, the widespread publicity which has been given to her case should prove useful in leading to her being traced. In the meantime we reiterate our genuine sympathy with Miss Hickman's relatives in their grave anxiety.

THE report of the medical officer of health of Cape Colony for the week ending August 1st shows that during the week in question no case of plague was discovered throughout the colony. As regards the Mauritius, a telegram from the Governor received at the Colonial Office on August 21st states that for the week ending August 20th there were 15 cases of bubonic plague and 9 deaths from the disease. As regards Hong-Kong, a telegram from the Governor received at the Colonial Office on August 26th states that for the week ending August 22nd there were 4 cases of plague and 3 deaths.

THE death at Marstrand, Sweden, on August 26th of Professor William Henry Corfield is announced. Dr. Corfield, who was well known as an authority upon public health, was Professor of Hygiene in University College, London, and Consulting Sanitary Adviser to the Office of Works. He was in his sixtieth year.

Captain C. E. P. Fowler, R.A.M.C., has been appointed Assistant Professor of Military Hygiene at the Royal Army Medical College.

THE LEBANON HOSPITAL FOR THE INSANE.—The fifth annual report of this hospital, which was founded near Beirut in 1896 by Mr. Theophilus Waldmeier, shows that during the past year, the third year since its opening, there have been admitted into the hospital 65 patients (40 men and 25 women). From last year there still remained 32 patients (17 men and 15 women), making a total of 97 under care during the year. Of this number 58 patients have been discharged (34 men and 24 women) of whom 11 were cured (five men and six women), 15 were improved (five men and 10 women), and eight died (six men and two women). At the end of the present year (March 31st, 1903) there remained in the hospital 39 cases (23 men and 16 women). The medical officer, Dr. O. Wolff, remarks that criminal acts under mental disorder seem to be more rare than in Europe.

THE PREPARATIONS FOR THE WAR IN SOUTH AFRICA.

THE report of His Majesty's Commissioners appointed to inquire into the military preparations and other matters connected with the war in South Africa was published on Wednesday last and is in many respects the most important document dealing with the British army that has appeared for 50 years. The report, which is in the form of a voluminous Blue-book, is signed by all the members of the Commission—viz., the Earl of Elgin, Viscount Esher, Lord Strathcona, Sir George Taubman Goldie, Field-Marshal Sir Henry Norman, Sir J. O. Hopkins, Sir John Edge, Sir John Jackson, and Sir Frederick M. Darley, while additional notes are appended by Lord Esher, Sir George Taubman-Goldie, Sir Frederick M. Darley, Sir John Edge, and Sir John Jackson.

The terms of reference were: "To inquire into the military preparations for the war in South Africa and into the supply of men, ammunition, equipment, and transport by sea and land in connexion with the campaign and into the military operations up to the occupation of Pretoria."

The Commissioners sat on 55 days to take evidence and heard 114 witnesses, whose evidence is recorded in two volumes annexed to the report. They found the instructions contained in the terms of reference much wanting in precision, but they interpreted their duty as being to make a full investigation upon all evidence available, while they did not consider it incumbent upon them either to arrive at a series of definite recommendations or to formulate a general scheme of army reform.

The report is divided into four sections: Section I. dealing with military preparations; Section II. with the supply of men; Section III. with ammunition, equipment, and transport; and Section IV. with War Office administration.

I. MILITARY PREPARATIONS.

Under the head of military preparations we have a thoroughly disquieting story. The state of unreadiness in which this country lay in the autumn of 1899, when the war in South Africa broke out, would be simply incredible if it were not proved by unimpeachable witnesses. Ever since the Jameson raid four years previously those best calculated to know had urged that nothing would so surely prevent a war in South Africa as the making of the British position impregnable. In spite of this, at the time when hostilities actually commenced, we seem to have been thoroughly short of men, of weapons, and of transport. The Commissioners find that the information supplied by the Intelligence Department was for all practical purposes neglected, and that we embarked on what we were warned would be a serious struggle with no general plan of campaign, the generals sent out to command receiving no definite instructions.

II. THE SUPPLY OF MEN.

The supply of men is dealt with under the five headings of (*a*) Regular Army, (*b*) Militia, (*c*) Volunteers, (*d*) Imperial Yeomanry, and (*e*) Colonial Contingents; and the medical point of interest lies in the fact that the witnesses seem to have generally been agreed that the physique of the troops first sent out was satisfactory. This is reassuring to know, particularly as assertions categorically in an opposite sense have been freely made and deductions have been drawn from those assertions as to the degeneracy of the British race. In the cavalry and artillery, which attract a somewhat better class of recruits, the physical standard was stated to have been good throughout, while the witnesses also agreed in praising the condition of the infantry regiments as they first arrived in South Africa. They concurred in attributing the high average of health and strength of the early drafts to the large proportion of reservists, who were far superior to the drafts of young soldiers who arrived later and who were admittedly not of the same class. Certain of the witnesses—Lieutenant-General Sir James Kelly-Kenny, Lieutenant-General Sir Archibald Hunter, and Professor A. Ogston—expressed a wider dissatisfaction with the physique of the troops, Professor Ogston saying that "some of the regiments, especially some of the militia regiments, were physically very inferior and more liable to disease ..... boys and weeds." General Kelly-Kenny referred to the physical defects due to the modern necessity of recruiting chiefly in the poorest

districts of crowded towns. All the witnesses agreed as to the good marching powers of the infantry, which shows that the physique of many of the troops must have been fairly satisfactory, while the *morale* of the regular army has definitely improved.

The Commissioners report that "the true lesson of the war is that no military system will be satisfactory which does not contain powers of expansion outside the limit of the regular forces of the Crown."

III.—AMMUNITION, EQUIPMENT, AND TRANSPORT—THE ARMY MEDICAL SERVICE.

Under this section we find the references of the Commissioners to the Army Medical *personnel* and the army medical equipment in the war. The outbreak of enteric fever at Bloemfontein, which led to severe criticism of the Army Medical Service, resulted in the appointment of a Royal Commission to inquire into the care and treatment of the sick and wounded in the South African campaign. The report of this Commission having been published the present Commissioners saw no reason for re-opening inquiry in that direction, but they have considered it to be their duty to investigate the *personnel* and equipment of the Royal Army Medical Service as tested in the war. It was proved conclusively by evidence on all sides that the Army Medical Service was hopelessly undermanned, although the individual work done by the officers was praised with almost equal unanimity. The undermanning of the Service was shown to be due to the unpopularity into which it had fallen under the old *régime* whereby there were not sufficient candidates presenting themselves to receive the vacant commissions. Surgeon-General Jameson, with great loyalty to his service, did not consider that the lack of competition for commissions had lowered the standard of the Army Medical Service, but some of the civilian medical men who had had experience in South Africa differed sharply from him, notably Professor Ogston and Sir Alfred Downing Fripp. Lord Roberts and Surgeon-General Sir William Wilson thought that special sanitary experts should be attached to the army, the Commander-in-Chief giving as an instance of this need that he found hospital tents pitched upon one of the chief sources of water-supply at Bloemfontein. The evidence throughout shows that if sanitation had been understood, not so much by the officers of the Army Medical Service as by the military officers generally and the commanding officers especially, thousands of lives might have been saved.

With regard to the army medical equipment we have the same difference of opinion shown in the evidence given by officers of the Army Medical Service and that given by the civilian medical men with war experience. To quote some of Sir Frederick Treves's words is enough to show that the supplies furnished by the Medical Department were certainly antiquated. "We were carrying about with us instruments which I should have thought would only be found in museums. ..... We took about medicines that were in bottles in the most cumbrous form and that had been in the bottles 20 years possibly. ..... The equipment of the field hospital is based upon certain tabulated forms and is supposed to be quite complete in itself and the result is that in the many journeys we had to make in Natal and on the banks of the Tugela we were dragging with us what I suppose amounted to tons of useless material. ..... We were dragging about, indeed, that which in no circumstances would have to be used in South Africa."

The Commissioners report that the evidence left the impression upon them that the Army Medical Service as a whole had not either as regards *personnel* or equipment been maintained at the high standard which in so vital a matter is essential, but they added that in no way was there any reflection upon the devotion or ability of the individual members of the service and, as a matter of fact, many witnesses said that the "skill, zeal, and devotion to duty of our medical officers during the war was beyond all praise." The particular words quoted are those of General Sir Charles Warren, but in using them he expressed the feeling of many others.

IV.—THE WAR OFFICE ORGANISATION.

The section of the report dealing with the War Office organisation sufficiently shows that the various bodies and individuals responsible for the affairs of the War Office and the conduct of a war have no clear definition of their duties to guide them. The War Office Council is informally constituted. The Army Board met regularly and did useful work within what it conceived to be its scope, but the exact duties of the Commander-in-Chief appeared to defy accurate description.

The country will read this report with feelings of considerable impatience and will, in particular, note that the Commissioners do not consider that steps are being taken to remedy the deplorable muddle which has been revealed. We are glad to think that, as far as the Army Medical Service is concerned, real reform has commenced.

Looking Back.

FROM

THE LANCET, *SATURDAY*, AUGUST 27, 1825.

FOREIGN DEPARTMENT.

ANALYSIS OF FOREIGN MEDICAL JOURNALS.

GERMAN JOURNALS.

History of a Patient from whom THREE HUNDRED AND NINETY-FIVE NEEDLES *were extracted; communicated by* Dr. OTTO, *of Copenhagen.*[1]

SOME notice has already been taken of this case by the journalists of this country, but it was mentioned in such a superficial manner that its credibility might have been questioned with great propriety. We confess that, at first sight we considered it a mere trick, played off upon some well-meaning but weak individual for the purpose of exciting the astonishment of the public; and had not the history of the case, as we now publish it, emanated from such respectable authority as Dr. OTTO, (the mention of whose name is sufficient to ensure for it attention and authenticity,) we should not have given it a place in our pages.[2]

In January 1819, violent cholic pains seized the patient,[3] attended with considerable fever and purging of blood, and so low was she reduced, that no one who saw her thought that she could recover.

On the 2d of February, a tumour, which had appeared just beneath the umbilicus was examined, and was found to consist of three principal divisions, or lobes; sedative and emollient cataplasms were applied to this, but the pain was not assuaged; the patient appeared to be gradually sinking. She remained very low until the 12th of February, when Professor HERHOLDT considered it necessary to make a deep incision into the swelling, in order to let out any pus that might have been contained in it. No matter came out, and but very little blood; he then examined the wound with a sound, and felt it strike against something, which communicated the sensation to the hand of its being a metallic body; with a forceps he laid hold of it, and, to his great surprise, drew out a *needle*. All the symptoms gradually subsided, but soon after returned again with a fresh vomiting of blood. The abdomen was again examined, and another tumour was discovered in the left lumbar region, the slightest touch of which occasioned great pain.

On the 15th of February, an incision was made into it, and a black oxydised needle extracted from its centre. From this time, that is to say, from the 12th of February 1819 to the 10th of August 1820, a period of eighteen months, the patient experienced pains in different parts of the body, supposed to be occasioned by needles deeply seated, and during that time two hundred and ninety-five needles were at different intervals extracted.

Many of them were broken, or corroded, some being without points, others without eyes; some were large and black, like the pins used for dressing the hair, and others were small. The brass needles retained their proper polish, but all the others were black and oxydised. They made their appearance at different intervals; sometimes days, weeks, and months intervening between the times of the extraction.

By the employment of antispasmodic medicines, cold bath, blisters, and so on, the patient gradually became better, and on the 8th of March, 1821, she appeared to be quite relieved, so much improved was she, that Professor Herholdt considered her quite well. Thus she remained up to this time,

[1] An extract only is given. The full account occupies nearly seven columns of THE LANCET.

[2] Vide "Looking Back" in THE LANCET, Dec. 21st, 1901, page 1743.

[3] Rachael Hertz.

when a new series of sufferings commenced; a painful tumour showed itself in the right armpit, which increased to a great size, and was so very painful that her life was considered in great danger. This swelling also contained needles, and so great was the number, that from the 26th of May to the 10th of July, 1822, *one hundred* were extracted, making, with the two hundred and ninty-five before mentioned, the enormous number of *three hundred and ninety-five!!!*

The patient is marked with scars in various parts of the body, and is at present in Frederick's Hospital, at Copenhagen, where she has been visited by Dr. OTTO, and thirty other persons, at different times, who are willing to verify the assertions herein contained respecting her.

It is supposed, by Professor Herholdt and Dr. Otto, that she must have swallowed the needles during her delirious fits.

REPORT OF THE COMMISSION ON THE NATURE, PATHOLOGY, CAUSATION, AND PREVENTION OF DYSENTERY AND ITS RELATIONSHIP TO ENTERIC FEVER.

IN August, 1900, the Secretary of State for War appointed a commission, consisting of Colonel J. Lane Notter, R.A.M.C., Lieutenant-Colonel D. Bruce, R.A.M.C., and Dr. W. J. R. Simpson, to investigate the circumstances connected with the occurrence of dysentery and enteric fever in the late South African campaign, and we are now in possession of the valuable report drawn up by the above members that has been presented to Parliament. The commission arrived in Cape Town in the first week in September. They then proceeded to Bloemfontein, Kroonstad, Johannesburg, and Pretoria. Next a laboratory was arranged at the latter place by Colonel Bruce, whilst Colonel Notter and Dr. Simpson went to Komatiport, and on their return journey inspected some 19 other camps. Subsequently one of the members of the commission was employed in connexion with the outbreak of plague in Cape Town, whilst the others visited various camps and later gave their services for general sanitary and plague purposes. When the plague ceased to spread Dr. Simpson inspected the same ground that his two colleagues had gone over. The above report embodies the results of his observations. To Colonel Bruce was allotted the laboratory work and to Colonel Notter and Dr. Simpson the matters relating to the inspection of camps, water-supply, &c.

In Part I. we have detailed the pathological results of the commission. These are illustrated by some beautiful plates. Regarding the relationship of the various organisms that have been held to be causative of dysentery Colonel Bruce's conclusions are mainly negative, for he found no such relationship to amœbæ, nor to any species of micro-organisms, whilst no relation was found between dysentery and enteric fever.

Part II., drawn up by Dr. Simpson, gives a very full description of the general history of the outbreaks of dysentery and enteric fever that occurred. He first of all reviews these two diseases as they occurred among the civil population of Cape Colony and Natal, and shows how the very insanitary environment as regards drainage, soil, disposal of the excreta, and water-supply furnished ample sources for their spread. Attention is drawn to the flies swarming from the latrines to the nearest unprotected food supply. The circumstances of the occurrence of dysentery and enteric fever in the South African army are then gone into. How great was the amount of sickness can be gathered from the accompanying table.

The comparative absence of the fatal dysentery which usually attacks armies in the field was probably due to the excellent food arrangements of this campaign, our soldiers obtaining their rations perfectly fresh and thoroughly cooked. Dr. Simpson, however, points out that each tin should not contain more than one day's ration; if it does the soldier has an extra weight to carry, whilst the ration itself is liable to become decomposed; to this cause some proportion of the bowel complaints was due. The chief cause, however, was probably the drinking of surface water and especially the water of rivers holding in suspension a large amount of mineral and organic matter, such as is the case in the Orange, Modder, Vaal, Eland, and Crocodile rivers. Another cause is judged to be the sand lodging on the food during the dust-storms.

Dysentery.

Period.	Admissions.	Deaths.	Percentage of deaths to admissions.
First year...	11,143	546	4·9
Second year	13,131	427	3·2
Enteric Fever.			
First year...	15,655	3,647	23·2
Second year	15,463	2,530	16·3

Dr. Simpson next details the circumstances, as far as he could learn them, connected with the occurrence of dysentery and enteric fever at Modder river, at Paardeberg and Bloemfontein, at Pretoria, and amongst the British prisoners at Waterval. Regarding the great epidemic of enteric fever at Bloemfontein, in which during seven weeks there were 4280 cases, or a 10·6 per cent. rate of incidence, the chief factors were, in his opinion, to be found in the following circumstances: An army arriving at Bloemfontein, predisposed to disease through the fatigues and privations it had undergone, and a portion of it being at the same time infected with dysentery and enteric fever; the troops encamping near farms that had been in recent years centres of enteric fever; the cutting off suddenly by the enemy of the recently introduced filtered water-supply for the bulk of this army and the consequent falling back on the former insufficient and condemned source. With respect to the occurrence of the two diseases at Waterval, we see by the report how different was the treatment of British prisoners at the hands of Dr. H. P. Veale and Dr. R. von Gernet. The sheds in which our men were confined were exposed to the most insanitary conditions, which were reported on by Dr. P. H. Haylett, who was in immediate charge, to his chief, Dr. Veale. His recommendations were not endorsed by the latter gentleman and Dr. Haylett, finding that he could do nothing for our unfortunate soldiers, resigned, and was succeeded by Dr. von Gernet. The latter medical officer at once reported directly to the Boer authorities, as the result of which Dr. Veale's connexion with the hospital ceased. Dr. von Gernet was placed in sole charge and the epidemic of typhoid fever and the prevalence of dysentery rapidly disappeared. Lord Roberts, always ready to acknowledge good service, referred in eulogistic terms to Dr. von Gernet's services to our men.

The subject of the sanitary prevention of enteric fever and dysentery must ever be a difficult one, practically considered, in an army in the field. However excellent the theoretical directions may be, the fatigue undergone by the soldiers in their long marches and the unexpected events that are bound to crop up will prevent the systematic carrying out of the necessary details. How can men be expected after an exhausting day's work to dig trenches, to filter and to boil water on their arrival in camp? Human nature being what it is, how can we expect thirsty men to wait for this preliminary treatment of their water? And if a given regiment stays but a short time in the camp the same precautions will, in all probability, not be taken as would be the case if it were there for some length of time. But these difficulties are not always insurmountable. Dr. Simpson indicates how much may be done. He points out that in our army in South Africa there was "no specially trained and well organised executive by which the recommendations made to the commanding officer of a company, or unit, or brigade or division, by the medical officer, or instruction laid down in the regulations, can be carried out." Though the paper regulations were excellent the practical aspect of the question was left out of sight and not sufficiently provided for. It must be confessed that the late Commander-in-Chief was responsible for the minor position occupied by the sanitary officer, inasmuch as, in his opinion, he was stated to be as a general rule "a very useless officer." Sanitation under the control of a sanitary officer was designated as a "fad." The responsibility for the above unsatisfactory state of affairs, Dr. Simpson states, can certainly not be

placed on the Royal Army Medical Corps. To remedy these defects Dr. Simpson would divide the Corps into two branches: (1) the medical branch; and (2) the health branch. The members of the latter division should undergo a special training, theoretical and practical, in military preventive medicine and public health work; and as members of this branch should also be included a few selected officers of the Royal Engineers specially trained in regard to sanitary construction and appliances. Also with an army in the field he would have health officers responsible severally for the lines of communication, and for each brigade, and at headquarters a chief sanitary officer and sanitary engineer. Among the more minute of his elaborate recommendations is one that in campaigns in warm countries where dust storms and flies are always prevalent a "mehtar" establishment from India should be attached to each unit with the duty to cover up the excreta immediately after the latrine has been used.

Colonel Notter does not agree with many of the statements in Part II. of the report, and his words of dissent are very clear and definite. For instance, in his opinion undue stress is laid upon the absence of special sanitary returns, and his objection that elaborate statistics are quite impossible in the case of rapidly moving troops is certainly valid. Again, he thinks that owing to the laborious duties of our troops—so laborious that in many cases they had only one night per week in bed—too much is made of a failure to put a guard over a particular source of water-supply, and the same criticism is made on Dr. Simpson's statement that "we have seen guards placed on water which soldiers should drink, but we have never seen guards placed on water which is dangerous and which ought not to have been drunk." With regard to the incidence of disease at Pretoria in connexion with the water-supply, Colonel Notter says that Dr. Simpson appears to have relied upon facts which did not, as far as he knows, come within the cognisance of the commission. The facts, again, concerning the ill-health of our men at Waterval Colonel Notter regards as hardly germane to the inquiry, and he also states that they were only submitted by Dr. von Gernet to Dr. Simpson and not to the committee as a whole. This, of course, is a very serious objection to Dr. Simpson's conclusions, as it is well known that Dr. Veale has traversed the statements made by Dr. Haylett and Dr. von Gernet in a letter addressed to our columns.[1] Regarding the proposal of the formation of a joint corps of the Royal Army Medical Corps and Royal Engineers for sanitary purposes, Colonel Notter holds this to be impracticable, and brushes away the suggestion in a few summary words. But by doing so he does not settle the question, and in our opinion much benefit might result from the conjoint deliberations of special members of these two corps. Any question of discipline could be at once settled by giving the principal medical officer plenary powers and by not appointing "a high sanitary officer" independently of the principal medical officer. This latter proposition would be a fatal blot on the project. There are other details of Dr. Simpson's report to which exception is taken, but these are the most important.

The sturdy differences of opinion between two such recognised authorities as Colonel Lane Notter and Dr. Simpson do not lessen the interest of a most valuable report and we hope that some at least of the points that have been raised will receive adequate attention. On mere pecuniary grounds a discussion is warranted. Dr. Simpson details the cost that enteric fever in the South African campaign has entailed. He shows the monetary loss to the Government to be as follows: (1) If a soldier died from enteric fever and had to be replaced by a trained soldier the cost would amount to £87; (2) if he recovered and convalesced in South Africa and was fit after four months to rejoin his regiment it would come to £57; and (3) if he recovered and was invalided home and was replaced by another man it would be £108. There were in the late war 31,118 cases of enteric fever. The cost of these cases, in their several classes as above comes to £2,724,000. To this has to be added the cost of the extra hospital staff, equipment, and transport, bringing the sum total to at least £3,500,000, if not £4,000,000. And, be it noted, this large sum of money only refers to the cases of enteric fever and not to those of dysentery and refers, moreover, only to the cheapest soldier available, not including the artilleryman, yeoman, volunteer, or colonial.

[1] THE LANCET, Dec. 8th, 1900, p. 1675.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 76 of the largest English towns 9096 births and 4548 deaths were registered during the week ending August 22nd. The annual rate of mortality in these towns, which had been 14·4, 14·3, and 15·7 per 1000 in the three preceding weeks, was again 15·7 per 1000 last week. In London the death-rate was 14·4 per 1000, while it averaged 16·3 in the 75 other large towns. The lowest death-rates in these towns were 4·0 in Hornsey, 4·9 in King's Norton, 6·9 in Reading, 7·0 in Stockton-on-Tees, 7·1 in Barrow-in-Furness, 7·9 in Derby, and 8·6 in Willesden and in West Bromwich; the highest rates were 21·3 in Hull, 21·8 in Newcastle-on-Tyne, 22·1 in Liverpool, 22·6 in Bolton, 23·5 in Wigan, 25·5 in Sheffield, 26·3 in Middlesbrough, and 32·6 in Bootle. The 4548 deaths in these towns last week included 1006, which were referred to the principal infectious diseases, against 591, 717, and 886 in the three preceding weeks; of these 1006 deaths 762 resulted from diarrhœa, 84 from measles, 54 from whooping-cough, 36 from scarlet fever, 35 from diphtheria, 33 from "fever" (principally enteric), and two from small-pox. No death from any of these diseases was recorded in Croydon, Hornsey, Hastings, Bournemouth, Great Yarmouth, Handsworth, West Bromwich, King's Norton, Barrow-in-Furness, Stockton-on-Tees, and West Hartlepool; the highest death-rates from these principal infectious diseases were recorded in Norwich, Hanley, Aston Manor, Liverpool, Bootle, Wigan, Warrington, Salford, Sheffield, Hull, and Middlesbrough. The greatest proportional mortality from measles occurred in Ipswich, Aston Manor, Stockport, Warrington, Blackburn, Sheffield, Middlesbrough, Sunderland and Merthyr Tydfil; from whooping-cough in Wigan and Oldham; and from diarrhœa in Norwich, Hanley, Aston Manor, Grimsby, Birkenhead, Bootle, Wigan, Bury, Sheffield, and Hull. The mortality from scarlet fever, from diphtheria, and from "fever" showed no marked excess in any of the large towns. Small-pox caused one death in Gateshead, and one in Newcastle-on-Tyne, but not one in any other of the 76 large towns. The Metropolitan Asylums hospitals contained 52 small-pox patients on Saturday last, August 22nd, against 66, 48, and 45 on the three preceding Saturdays; 13 new cases were admitted during the week, against nine, four, and nine in the three preceding weeks. The number of scarlet fever patients under treatment in these hospitals and in the London Fever Hospital, which had been 1726, 1771, and 1758 at the end of the three preceding weeks had further increased to 1797 at the end of last week; 225 new cases were admitted during the week, against 237, 216, and 215 in the three preceding weeks. The deaths referred to diseases of the respiratory organs in London, which had been 110, 107, and 120 in the three preceding weeks, were 120 last week and were 41 below the number in the corresponding period of last year. The causes of 37, or 0·8 per cent., of the deaths in the 76 large towns were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in West Ham, Bristol, Nottingham, Salford, Bradford, Leeds, and in 48 other smaller towns; the largest proportions of uncertified deaths were registered in Reading, Rotherham, and Stockton-on-Tees.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in eight of the principal Scotch towns, which had been 14·7, 14·6, and 15·4 per 1000 in the three preceding weeks, fell to 15·1 per 1000 during the week ending August 22nd, and was 0·6 per 1000 below the mean rate during the same period in the 76 large English towns. The rates in the eight Scotch towns ranged from 12·8 in Greenock and 13·5 in Edinburgh to 16·4 in Paisley and 17·2 in Dundee. The 493 deaths in these towns included 65 which were referred to diarrhœa, nine to whooping-cough, nine to "fever," six to diphtheria, six to measles, and one to small-pox. In all, 96 deaths resulted from these principal infectious diseases last week, against 63, 60, and 69 in the three preceding weeks. These 96 deaths were equal to an annual rate of 3·0 per 1000, which was 0·5 below the mean rate last week from the same diseases in the 76 large English towns. The fatal cases of diarrhœa, which had been 28, 34, and 45 in the three preceding weeks, further rose to 65 last week, of which 38 occurred in Glasgow,

eight in Dundee, six in Edinburgh, and five in Paisley. The deaths from whooping-cough, which had been 15, five, and 12 in the three preceding weeks, fell last week to nine, of which four occurred in Glasgow and two each in Edinburgh and Dundee. The fatal cases of fever, which had been five, six, and three in the three preceding weeks, rose last week to nine, of which five occurred in Glasgow and two each in Edinburgh and Dundee. Of the six deaths from diphtheria three occurred in Edinburgh and two in Glasgow. Three of the six fatal cases of measles occurred in Glasgow. The death from small-pox belonged to Greenock. The deaths referred to diseases of the respiratory organs in these towns, which had been 69, 54, and 50, numbered 51 last week, and were 17 below the number in the corresponding period of last year. The causes of 17, or 3·4 per cent., of the deaths registered in these eight towns last week were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 18·3, 18·2, and 18·0 in the three preceding weeks, further rose to 22·8 in the week ending August 22nd. During the past four weeks the death-rate has averaged 19·3 per 1000, the rates during the same period being 13·8 in London and 13·5 in Edinburgh. The 166 deaths of persons belonging to Dublin registered during the week under notice were 35 more than in the preceding week and included 12 which were referred to the principal infectious diseases, against five, eight, and seven in the three preceding weeks; of these, 10 resulted from diarrhœa, one from diphtheria, and one from whooping-cough, but not one from small-pox, measles, scarlet fever, or "fever." These 12 deaths were equal to an annual rate of 1·7 per 1000, the death-rates from the principal infectious diseases last week being 2·6 in London and 2·2 in Edinburgh. The fatal cases of diarrhœa, which had been four, five, and two in the three preceding weeks, increased to ten last week. The 166 deaths in Dublin last week included 36 of children under one year of age and 41 of persons aged 60 years and upwards; the deaths of infants showed an excess of eight, and those of elderly persons an excess of six, as compared with the respective numbers recorded in the preceding week. Eight inquest cases and four deaths from violence were registered and 53, or nearly a third, of the deaths occurred in public institutions. The causes of six, or 3·6 per cent., of the deaths registered in Dublin last week were not certified.

THE SERVICES.

THE REPORT OF THE COMMISSION ON THE WAR IN SOUTH AFRICA.

THE Commissioners appointed to inquire into the military preparations for the war in South Africa, "into the supply of men, ammunition, and equipment, and transport by sea and land, in connexion with the campaign, and into the military operations up to the occupation of Pretoria," have issued their report. It is a document of great length, covering 300 foolscap pages. The Commission, of which the Earl of Elgin was president, sat on 55 days to take evidence. They examined 114 witnesses and put 22,200 questions, the answers to which are recorded in two volumes of minutes of evidence. Dealing with the Army Medical Corps the report says:—

> It is desirable that the officers of the Army Medical Corps should have opportunity of maintaining their professional skill at least on a level with that of the average surgeon in civilian practice. It should be considered also whether arrangements, such as those existing in Germany, should not be made in time of peace with medical men of experience in ordinary practice to secure their services on occasions which shall be declared to be national emergencies.

ROYAL NAVY MEDICAL SERVICE.

The undermentioned Staff Surgeons have been promoted to the rank of Fleet Surgeon in His Majesty's Fleet (dated August 21st, 1903):—Edward John Morley, Hugh Winckworth Macnamara, Joseph Henry Whelan, John Patrick Joseph Coolican, Edgar Ralph Dimsey, D.S.O., Joseph R. McDonnell, and Hamilton Meikle.

The following appointments are notified:—Staff Surgeons: C. J. Mansfield to the *President*, additional, temporary (to date August 17th), and J. Bradley, to the *President*, for three months' hospital study (to date August 19th).

ROYAL ARMY MEDICAL CORPS.

The undermentioned Majors to be Lieutenant-Colonels (dated August 4th, 1903):—Horace Lynden-Bell, J. Riordan, R. H. Firth, R. H. Moore, A. E. Tate, C. E. Faunce, and H. J. Wyatt.

Colonel William McWatters retires on retired pay (dated August 26th, 1903); Major G. T. H. Thomas retires on retired pay (dated August 26th, 1903); Captain G. E. Hughes retires from the service receiving a gratuity (dated August 26th, 1903); Lieutenant W. C. Stevenson resigns his commission (dated August 26th, 1903).

Major E. J. Lawless on having relinquished his temporary commission for service in South Africa is granted the honorary rank of Major in the Army, with permission to wear the uniform of the corps (dated August 7th, 1903).

Captain H. H. Norman is granted leave out of India for six months on medical certificate. Lieutenant-Colonel J. Coats, retired list, is selected for duty with the troops at Ayr. Major F. McDowell proceeds to Madras. Captain C. S. Smith is appointed as an attached officer to the Coldstream Guards. Lieutenant-Colonel G. E. Twiss is ordered to the Royal Victoria Hospital, Netley, for duty, vice Lieutenant-Colonel F. H. Treherne.

ARMY MEDICAL RESERVE OF OFFICERS.

Lieutenant W. J. Reid, Sherwood Foresters Volunteer Infantry Brigade Bearer Company, to be Surgeon-Lieutenant. Dated August 26th, 1903.

DEATHS IN THE SERVICES.

Surgeon-Major-General Thomas Norton Hoysted, A.M.D., on August 12th at Sidcup, in his sixty-fourth year. He entered the service in 1855, was promoted surgeon in 1871, surgeon-major in 1873, surgeon-major-general in 1892, and retired in 1894. He served with the 59th Regiment at the operations before and at the capture of Canton in December, 1857 (medal with clasp). He took part in the Indian Mutiny campaign at the last advance into Oude under Lord Clyde in 1858, including the capture of Fort Ameetie (medal), and also served in the Afghan war in 1878–79 and was present at the capture of the Peiwar Kotal (medal with clasp).

AMBULANCE SURGEONS HONOURED.

The Prince of Wales, Grand Prior of the Order of St. John of Jerusalem in England, has conferred the special medal for meritorious service during the South African war on Dr. J. Johnston and Dr. J. Hilton Thompson, ambulance surgeons to the Bolton Corps of the St. John Ambulance Brigade. During the South African and China wars Bolton furnished 137 ambulance men, the largest number from any provincial town.

Correspondence.

"Audi alteram partem."

THE TRINIDAD EPIDEMIC.

To the Editors of THE LANCET.

SIRS,—In THE LANCET of August 22nd, p. 544, reference is made in the account of the proceedings of the Section of Tropical Diseases at the meeting of the British Medical Association at Swansea to the communication of Dr. J. R. Dickson and Dr. C. F. Lassalle, entitled "Varioloid Varicella in Trinidad." In this communication the outstanding features of the disease are stated to be (1) the occurrence of a second attack in persons recently recovered from the disease, (2) the successful vaccination of persons recently recovered from the disease, and (3) attacks occurring in recently vaccinated persons. May I point out in reference to the above statements that for eight months prior to my official visit in February of this year to report on the nature of the malady the disease in question had been declared to be chicken-pox pure and simple. Now true chicken-pox, or varicella, exists in Trinidad just as elsewhere, and within my own knowledge cases of real chicken-pox were placed in the same wards as cases of this so-called "varioloid varicella" (*alias* small-pox). It is not surprising therefore to know that such patients became infected and after the usual incubation period developed small-pox. These patients thus *appeared* to have had a second attack, the first attack being chicken-pox and the second small-pox. With regard to the successful vaccination of persons recently recovered from the "disease" one need only remark that successful vaccination performed in those of the cases that were true chicken-pox is only what might be expected. Lastly, as to (3) which states that attacks occur in recently vaccinated persons, I may say, in the first place, that vaccination would be no preventive in

those of the cases that were chicken-pox and, in the second place, that the expression "recently vaccinated" requires accurate definition. Thus, at the time that I was holding my inquiry in Trinidad the surgeon-general of the colony cited three cases where the rash of the disputed disease had appeared *the day after the vaccination*[1] as a proof of the non-influence of vaccination. Further, the official issue of a circular by the surgeon-general in May last, stating that vaccination prevents the disease, as noted in THE LANCET of June 20th, p. 1750, and in the *British Medical Journal* of July 25th, shows that after many denials the medical officials of the colony acknowledge the disease to be small-pox, although the horrible qualifying adjective "small" was omitted in the circular in question and only the word "pox" was used.

I have been subjected to much personal abuse in the press of the colony of Trinidad and by high Government officials (medical) in other colonies for daring to state this disease to be small-pox. Force of circumstances, however, have now compelled recognition of the fact of vaccination being a preventive—a fact pointed out by me in my report as long ago as March and characterised at the time by the Trinidad authorities as the product of my fertile imagination. In spite of all this in Trinidad the disease is still the "pox" or, forsooth, "the varioloid varicella."

Experience in the United States of America and in Canada, and more recently at Cambridge, has shown that epidemics of variola, just as any other infectious disease, vary in virulence in different outbreaks. Further, history seems to show that this is, to some extent, a cyclic variation.

I am, Sirs, yours faithfully,

J. F. E. BRIDGER.

St. Mary's Hospital, W., August 25th, 1903.

MEDICAL DOCTRINES OF HEREDITY.

To the Editors of THE LANCET.

SIRS,—In a letter of criticism, otherwise singularly fair and free from acerbity, Dr. A. W. Gilchrist in THE LANCET of August 15th, p. 493, says: "Natural selection, indeed, may be regarded as the scientific conception of the agency by which the wicked are entirely swept away and the good are rewarded—just as Dr. Reid and Dr. Niven would have it." Might I ask Dr. Gilchrist to point out one sentence of my own or of Dr. Reid's which could lend itself to this construction? Following Mr. Herbert Spencer I have said that the *fit*, other things being equal, as a rule survive and continue the race. Of course, the statement that the good survive may be a fact, but I certainly do not know it to be so.

In answer to the question why the views of Professor Kassowitz have not been mentioned I can only say for myself that the truth of the Darwinian doctrine of descent is not under discussion. Where the two schools represented in this controversy differ is in the cause of one of its factors—variation. However it be, and without in the least trying to indicate *how*, the neo-Darwinians point out that in higher organisms genetic variation is essentially connected with sexual reproduction. No doubt they do say that in the last analysis all variations are due to acquirements made by the germ cells themselves. But they do not know, nor do they try to show, why a germ should vary in one of a million or a billion or a trillion possible directions more than another. The neo-Lamarkians, however, have gone further. They do try to show and claim that they have proved that acquirements made by a parent organism are transmuted into variations in the germ cells and that these variations are transmitted to future generations by the offspring derived from these germ cells. But not content with that they have taken a bolder step and claim that external agents, such as alcohol circulating in the blood, acting on the germ cells and on the parent organism at the same time, will cause these germ cells to proliferate into offspring having inborn variations similar to the modifications which the agent caused in the parent. Now it must be noticed that this latter case is not a problem of heredity, for nothing is supposed to have been transmitted from the parent to the offspring. The neo-Darwinians do not deny that parental acquirements or external agents circulating in the blood may not so influence the germ cells as to cause them to proliferate in this or that possible or probable direction. Nor can they deny, nor would they try to deny, that this possible direction will not be of the same kind or in the same direction as that made by the parent. To try to do so would involve them into proving a universal negative which is manifestly impossible. What they do deny is that if ever such a thing does take place it must be so rare that no indisputable instance of it, in all the trillions of organisms that inhabit and have inhabited this earth, has yet been recorded, and thus as a factor in evolution may be neglected.

Dr. Gilchrist wonders why he finds "no allusion to Professor Weismann by those who so strenuously support his views" and proceeds to say that "this omission on the part of Dr. Reid and Dr. Niven is unkind to say the least of it." No one, I suppose, would try to decry the brilliancy of Professor Weismann; but if I understand his views correctly he disbelieves in the transmission of acquired traits; he believes in the continuity of the germ plasm; and he has, without proof, peopled this germ plasm with a whole host of mysterious ids, determinants and biophores, and to these he traces the causes of variation. As Professor Weismann was anticipated in his views on the non-transmissibility of acquired traits by Pritchard, among others, those who hold the same view must not therefore be called followers of Weismann, nor yet when he teaches that variations are inborn, for he was also anticipated in this. He has built an immense superstructure by aid of his biophores, &c. These mysterious bodies may or may not exist. I do not know and I do not know any other body who does. I do not deny their existence—I cannot; but before I admit his conclusions I ask for some evidence, even though it be of the dimmest, the most shadowy, of the existence of these wonderful and astonishing bodies. The doctrine of the transmissibility of acquired traits is one thing, the attempt to show *how* inborn characters are transmissible is quite another. No doubt if this could be proven it would add additional evidence to the gigantic mass already existing to prove that acquired traits are not transmissible, but its failure is no disproof. The speculations of Professor Weismann seem to me to be simply a piece of guesswork and nothing more.

I need say very little about Dr. Gilchrist's remarks as to "Ehrlich's side-chain and the light it throws on the question of heredity." Evidence proving the existence of cytophiles, haptophores, &c., has already been asked in your columns and has not as yet been given. Until that evidence is forthcoming speculation will not help us much. Dr. Gilchrist, however, has evidence, convincing evidence, to prove that acquired traits are transmissible. Will he give us that evidence in your columns? Many beside myself will be glad to see it, to examine it, and if found convincing to admit it. If it is indisputable it will get us out of this position of everlasting doubt and we shall be thankful to him.

I am exceedingly glad that the amount of difference separating the views of Dr. J. Wiglesworth from those of my own is getting less and less. We have got so far as to agree, first, that acquired traits are not transmissible; secondly, that parental drinking does not cause increased desire for alcohol in the offspring; and thirdly, that every disease is a cause of evolution against itself. One thing still separates us and that is the action of external agents when affecting both the germ cells and the parent organism at the same time. Formerly it was pointed out in arguments like these that external agents acting on the germ cells and parent organism could not cause changes in the future offspring similar to those produced in the parent, seeing that there were neither bones, muscles, nor nervous tissue existing in the germ cells. Dr. Wiglesworth for this difficulty has an exceedingly subtle explanation, and it is this. In the germ cells there are different kinds of molecules which determine the development of all the different kinds of tissues in the body, and the molecules which determine the development of the cerebral tissues are the latest formed portions in time of the germ plasm and are therefore more unstable than the others. Any injurious agent, therefore, circulating in the blood will adversely modify the development of the cerebral centres. I pointed out in a former letter that an alteration such as this was simply a variation, or, rather, that the offspring varied in a *definite* direction. Dr. Wiglesworth, however, claims that it is simply a *special* influence, but as it must always be the nervous centres which suffer first, for they are the most unstable, it does not seem to matter much what term we use. If I am right and that a variation

[1] Vide Royal Gazette of Trinidad.

has been produced, and as variations are admitted, I believe, by everyone to be transmissible, the child developed from one of these germs would tend to transmit this variability, and as it would increase generation after generation it follows that the race would become more and more mentally unstable—a condition, I humbly submit, that has not been proved. However, neglecting this argument, might I ask Dr. Wiglesworth for some evidence proving the existence of these marvellous molecules? I do not deny their existence, as I know nothing about them. It seems to me, though, that there is not much to choose between the speculations of Professor Weismann and those of Dr. Wiglesworth: the one peoples his germ plasm with biophores, the other with molecules; both seem to be gropings in the dark. As opium, a deleterious agent and a cause of evolution against itself, is used by millions of people, it must also damage the molecules of the germ cells which determine the development of the cerebral centres and so be a cause of mental instability in the offspring just as much as alcohol is supposed to be if Dr. Wiglesworth's reasoning is correct. Will Dr. Wiglesworth undertake to prove that the offspring of "opium eaters" are more mentally unstable than the offspring of those of the same race who do not use it.

I unreservedly admit that I believe "that offspring developed from germ cells may be influenced in this or that possible or probable direction by injurious agents—for example, alcohol—circulating in the parent's blood." I submit, however, that I thereby in no way "concede the main point under discussion." I do not know, and I am inclined to believe that no other one knows, why a germ should vary in one of a billion possible directions more than another, and certainly I do not know why a germ should vary in the direction of being injured rather than in the opposite direction when exposed to poisons circulating in the blood. I think therefore it will be evident that I do not in the least differ from the views of Dr. Reid and that certainly the views of Dr. Wiglesworth and my own do not agree.

It is a pity that Dr. C. Mercier did not succeed in being funny, seeing that his logic (marvellous logician though he may consider himself to be) was most illogical. May I point out without traversing his whole letter and confining myself to his first objection that it is simply "by a parity of reasoning" that one is able to explain the long neck of the giraffe.

I am, Sirs, yours faithfully,

Liverpool, August 23rd, 1903. C. R. NIVEN.

To the Editors of THE LANCET.

SIRS,—As this discussion was begun by me, perhaps, before it goes any further, I may be permitted to make an explanation and, in some sort, an apology. I have been accused of arrogance. The indictment is true. I have not only been arrogant but worse when dealing with a subject which, because scientific, should be handled with calmness and, because obscure and difficult, with modesty. I can only plead, as I have done before, that I knew no other way to shake a confidence which seemed to me without justification. In future I shall endeavour to behave with such sweet reasonableness as I hope will satisfy even the suave but exacting soul of Dr. C. Mercier. He shall not again imagine that I regard him in the light of a worm or even a blackbeetle. He gives Dr. C. R. Niven and myself instruction in logic. I am sure that he is thoroughly competent. But why *then* does *he* ask *us* for information? He asserts that alcohol, diseases, &c., affecting parents cause offspring to be degenerate. Indeed, he is one of the faithful to whom I alluded in the last passage of my last letter who, in the midst of a scoffing and sceptical world, still adhere to the time-hallowed time-eroded doctrine of the transmission of acquirements. We have given reasons for believing that the evidence is unsatisfactory. In all humility, what is the nature of the information he asks? Does he really—after all that logic—expect us to prove a negative? Instead of confining himself to personal matters and logic, will he not tell us exactly what the "counteracting circumstances" are? As to the *petitio principii*, the very definition of a variation involves the supposition that it had its origin in a variation of the germ plasm. Can Dr. Mercier frame a definition which does not involve that supposition? As to gravitation and the calf muscles, the idea underlying his argument is this, that because one apparently incredible thing has been proved by irrefutable evidence, therefore we should believe other incredible things without evidence. That line of reasoning is even older than Newton. As to the legs of kittens and puppies, if he will produce the leg of one which is exactly like the leg of another, we will grant his argument. As to the necks of giraffes, certainly, if giraffes stretch their necks and the stretching is transmitted, I see no reason why their necks should not grow as high as the cross of St. Paul's. In fact, considering his beliefs—perhaps I should say his faith—I am lost in wonder that Dr. Mercier is not lost in wonder that they are not already higher. I am on my good behaviour and I am an even humbler student of logic than Dr. Mercier, but in the interests of the science I must protest that he seems to take some very disconcerting liberties.

Dr. C. E. Scudamore says that "in order to maintain his ground Dr. Reid must show that degeneracy due to an acquired morbid condition of the parent would be necessarily more potent than any counteracting influence—e.g., the elimination of the unfit." Well, but take the case of virulent malaria. The whole race suffers at first tremendously. Even now immunity is extremely rare among young negroes. Some die and leave no offspring. The rest survive and leave, it is supposed, defective offspring. And this continues generation after generation. If any individuals are so resistant that their offspring are not affected, yet these offspring intermarry with the degenerates and their offspring are in turn degenerate. The *mean* of the whole race is thereby lowered. The more virulent the malaria the more rapid and complete should be the degeneration of the race. But as a fact quite the contrary happens. Races that have been most exposed to the action of malaria are not in the least degenerate. They have merely become highly resistant. So also whole races have been exposed to alcohol or to hardship and privation but there is not the slightest evidence that they grow degenerate. They grow more temperate or more hardy. Dr. Scudamore says that idiocy is common among the children of the alcoholic. That is not the point at issue. Let us have clear evidence that it is more common among them in consequence of parental intemperance than among the children of the sober.

If Dr. Scudamore will turn to Professor J. Cossar Ewart's presidential address to Section D of the British Association[1] he will find the strongest case against my contention that I know of. It is strong, not only because of the direct nature of the evidence brought forward, but also because as an authority on heredity Professor Ewart has hardly a rival in the scientific world. He states that some pigeons from India in his possession produced no offspring or only weakly offspring while infected by a parasite resembling that of malaria but normal offspring when restored to health. I have no desire to minimise the importance of his observations but it is obvious, in view of the fact that species exposed to disease do not degenerate and that asexual reproduction results in exact copies of the parent, that his observations need to be extended before they can be accepted as conclusive. Nor do I mention his address in a spirit of bravado. I draw attention to it because it confirms the ordinary medical view and chiefly because it brings into prominence a circumstance on which he has not dwelt but which, if true, is important and curious. It seems, if his observations are accepted, that spermatozoa which leave the male during his illness are so weakened that even within the healthy female body and after union with healthy ova they produce debilitated offspring. In other words, such cells produce weakened descendant-cells. Neither in themselves nor in their descendants do they recover. But if these same sperms reside for a longer time within the unhealthy body of the male they can in common with all the rest of his cells, including the spermatoblasts, recover perfectly and produce normal offspring when he recovers. So that the conclusion we are driven to is this, that the only cells in the whole body incapable of recovery are those ripe germ cells which happen to pass to a healthy environment (the female body) and which enter into union with healthy cells. As I say, if this were confirmed it would be a very curious and important fact.

But now supposing it *were* confirmed, supposing it were proved by extended experiments, that I have been mistaken and that parental disease does affect offspring, then another point would arise, What is the nature of this filial enfeeblement? Is it a true variation (inborn trait) or is it merely a modification (acquirement)? Professor Ewart regards it as a variation. I have made the same assumption, and so, as far as I am aware, has everyone else. But variations are transmissible to offspring and to remoter

[1] Nature, Sept. 12th, 1901.

descendants, whereas modifications are not. If then, the enfeeblement is a true variation, it is impossible to understand how racial evolution can result from a cause which renders offspring degenerate. But if it is only an acquirement, if the germ cell merely is enfeebled, while the germ plasm contained within it is not radically altered—as seems to be the case with the sperms that remain in the body—then here would be an explanation of the mystery. It would be possible in that case for racial evolution to occur even though parental disease enfeebled offspring, since the enfeeblement would not be transmitted to descendants. Only direct experiment can decide this point. Professor Ewart does not appear to have experimented with the offspring of the enfeebled individuals; but it is to be hoped that he will do so. I offer this suggestion for what it is worth but the results of asexual reproduction render me extremely sceptical.

Leaving aside for the time being these very obscure and abstruse problems, I may be permitted to express my pleasure that none of your correspondents now appear to doubt that human evolution really has resulted from disease and alcohol. When first I raised the point it was received with amazement and amused incredulity. The next step, I hope, will be a recognition of the tremendous consequences of that evolution. The political history of man is important but it is a little thing, even as regards political results, when compared to his natural history.

I am, Sirs, yours faithfully,

Southsea, August 23rd, 1903. G. ARCHDALL REID.

To the Editors of THE LANCET.

SIRS,—Dr. G. Archdall Reid and Dr. C. R. Niven require no assistance in meeting the arguments of Dr. J. Wiglesworth; one can only marvel at Dr. Reid's patience in meeting and disposing of the same class of opponent year after year. I beg a small space to comment upon the report of the discussion on Dr. Reid's paper before the British Medical Association which appeared in THE LANCET of August 15th, p. 469.

I cannot believe that your reporter is romancing; I cannot believe that he is indulging his sense of humour, which would be sadly out of place in an account of the annual professional exhibitions of mental meteorism; I can only believe that his report is too true and represents the solemn opinions of a number of medical men whose education, presumably, included a study of biology. The position of these champions of *post hoc* reasoning appears to be as follows: Statistics prove that drunken parents often have defective children (or, rather, defective children in asylums have often had drunken parents), therefore parental drinking is a cause of filial degeneration.

Is it really necessary to point out the fallacy to gentlemen who have passed an examination in Jevons or Berkeley? Have they checked their conclusions by ascertaining to what extent *non*-drunken parents have defective offspring or to what extent the defective children in asylums are the offspring of defective people? Mental instability (whatever that means) is, they tell us, a cause of drunkenness. Then may not the shortcomings of the child be due to the parental "instability" and not to the parental drunkenness which accompanied it? Surely there is a great gulf here between the *post* and the *propter*. And is there not reason for less dogmatic assertion when one recollects that biologists—men who understand the real difference between inborn and acquired characters—have never yet ascertained (*pace* Dr. A. W. Gilchrist and his Neapolitan hearsay), in spite of immensely prolonged investigations, that it is possible to modify the germ plasm.—I am, Sirs, yours faithfully,

Florence, Italy, August 21st, 1903. H. LAING GORDON.

To the Editors of THE LANCET.

SIRS,—I was somewhat struck on reading the account in THE LANCET of the meeting of the Psychological Section of the British Medical Association with the ignorance displayed by Dr. G. Archdall Reid's opponents of his previous works on the subject and of the grounds upon which he based his arguments. As one who has taken a certain interest in the subject I must confess my surprise at Dr. J. Wiglesworth's remarks. I fancy that had he been acquainted with Dr. Reid's "Alcoholism, a Study in Heredity," he would have considerably modified the statements which he made. The same applies to the remarks made by Dr. A. W. Gilchrist and others. Had these seen the work that I have mentioned, together with "The Present Evolution of Man" written by the same author some little time back, they would have found that there their arguments had been completely forestalled and refuted. These works are the most interesting and lucid amongst those I have had the pleasure of reading and they throw an entirely new light upon the vexed question of heredity, a subject upon which medical men unfortunately seem to dogmatise without first studying the actual facts as they are seen in nature.

I may be allowed possibly to quote the remarks of your own reviewer on "The Present Evolution of Man": "The result is a monograph which is crowded with illustrative data and well-reasoned arguments, a work that requires to be read and studied many times before its full import is grasped, and one which deserves in its place as much attention from the thoughtful as any of the numerous writings that have arisen from this most fruitful doctrine."[1] Dr. Reid may be right or he may be wrong. It is not for me to say. At any rate, to my mind he has advanced arguments and proofs which in the various discussions that have taken place have never been refuted. I, and I think many others, would follow with the very greatest interest a discussion of his theories by those who have made a careful study of his works and have not, as happens with so many, jumped to immature conclusions after what has evidently been a most perfunctory perusal of his arguments.

I am, Sirs, yours faithfully,

A. MEARNS FRASER, M.D. Edin.,
Medical Officer of Health of Portsmouth.

Portsmouth, August 24th, 1903.

THE USES OF SODIUM SALICYLATE IN THE TREATMENT OF MALARIAL FEVER.

To the Editors of THE LANCET.

SIRS,—At p. 95 of THE LANCET of July 11th, 1903, Mr. A. D. E. Kennard has an article on this subject, in the course of which he says: "I find that this drug is very little used in India for malarial fever, in fact the practitioners there pin their faith to quinine," &c. It is true that medical men in India use quinine in malarial fevers; but it is incorrect to state that they do not use sodium salicylate as well. It is a very common treatment indeed to employ sodium salicylate either alone or in combination with other diaphoretics for relief of the *symptoms* of pain and pyrexia, while quinine is used at the same time for the *cure* of the malarial attack. Speaking for myself, I have systemetically used sodium salicylate on myself and on my patients in malarial fever for over a dozen years, and I know that many of my brother officers in the Indian Medical Service do the same.

I am, Sirs, yours faithfully,

July 31st, 1903. D. M. MOIR, M.D. Edin.

THE ADMINISTRATION OF SOMNOFORM.

To the Editors of THE LANCET.

SIRS,—In THE LANCET of August 15th, p. 496, is a letter under the heading "The Administration of Somnoform," in which the writer alludes to the description of an inhaler for somnoform by Mr. Vernon Knowles appearing in THE LANCET of August 1st, p. 323. The writer speaks of this apparatus as an excellent one, but goes on to say that he personally does not see the need of any special apparatus beyond the usual Clover's bag attached to the ordinary facepiece which he lines with cotton-wool, leaving the entrance to the bag free. Having used Mr. Knowles's inhaler almost daily for the last three months with excellent results I should like to point out that the most important features of this inhaler have been overlooked by Dr. W. Bernard Secretan and certainly do not obtain in his method. The fact that the supplemental bag of this inhaler is reversible and can also be sterilised is obviously a great improvement on the ordinary Clover's bag.

Again, the air valve obviates the usual though very objectionable procedure of the administrator inflating the bag with his own breath before presenting the anæsthetic. When once the facepiece has been applied there is no need to remove it until complete narcosis has been obtained, the air-supply being regulated by the valve. In using this

[1] THE LANCET, June 13th, 1896, p. 1647.

inhaler the period of induction is lessened and a smaller quantity of somnoform is required.

The lint cone, too, is a more convenient medium for conveying somnoform than cotton-wool, as the former can more easily be adjusted to the facepiece and can be kept in exact position by the four-armed spring and is so quite out of the way and cannot touch the face of the patient. In giving anæsthetics for dental practitioners plenty of space in the facepiece is very necessary, especially when a mouth prop of the Brunton variety is used, which projects one inch or more in front of the incisor region.

I find it preferable to give two and a half cubic centimetres or half the dose marked on the bottle, repeated if necessary, as with this quantity I have found no tendency to sickness, whereas with larger doses a feeling of sickness or actual vomiting sometimes occurs.

As somnoform is a very satisfactory anæsthetic for minor operations and as a preliminary to ether administration further correspondence from those who have had experience with it would be of interest.

I am, Sirs, yours faithfully,

ERNEST C. MAGUIRE, M.D. Aberd.,
Honorary Anæsthetist, Brighton Dental Hospital.

August 22nd, 1903.

THE TREATMENT OF GOITRE BY THE USE OF DISTILLED OR RAIN WATER.

To the Editors of THE LANCET.

SIRS,—The interesting point is that Dr. C. A. Rayne finds that his patients are losing their goitres by the simple plan of avoiding the "cause," whatever it be, contained in drinking-water. This, of course, can only apply to the "acquired" disease. In the article "Thyroid" in the Encyclopædia Medica Dr. G. R. Murray states the same conclusion in practically similar terms. The *boiling* of all drinking-water, he says, may in early stages be followed by disappearance of the goitre. The connexion of the water-supply with endemic goitre is fairly generally recognised, and while one authority (Quain's "Dictionary," 1883) advises to abstain from drinking the water in goitrous districts, another (Heath's "Dictionary of Practical Surgery," 1886) says, "The patients and those living in goitrous districts ..... should drink only *boiled* water." Yet I venture to think that Dr. Rayne is correct in regarding this "old" advice about using only *boiled* or *distilled* or *rain* water as not insisted upon or rigorously carried out in practice. Dr. Murray further suggests that a living micro-organism is indicated as the probable cause of the disease from the fact that the water containing it is rendered harmless by boiling. If this be found equally as efficacious as distilled or rain water *boiling* would seem to be the least troublesome process.

I am, Sirs, yours faithfully,

Urmston, August 24th, 1903. T. CARTER BOOTH.

To the Editors of THE LANCET.

SIRS,—Although, as Dr. L. E. Stevenson points out in THE LANCET of August 15th, p. 493, the treatment of goitre by means of distilled water is nothing new, yet I think the following case which occurred in my own practice a good many years ago may be of interest to your readers in connexion with the various letters which have appeared on the subject in your columns. The patient was a girl, aged about 15 years, who had a rapidly increasing parenchymatous goitre of short standing. The sole water-supply to the house in which she lived was rain-water collected from the roofs. The drinking of such water should not produce goitre, but the main collecting-pipe which led from the roof to the cistern crossed the bottom of a dung-pit and was cracked. The water consequently had been getting polluted with stable manure and when this defect was remedied and the girl drank plain unfiltered rain-water the goitre gradually disappeared. The contamination of surface water from farm and stable yards is quite recognised as a factor producing goitre. It has been pronounced to be due to the presence of ammonia salts or free ammonia, but I do not know whether the presumption is warranted. I am sure that goitre is much less common in this district than it was 15 years ago, probably owing to the disappearance of surface wells and unprotected spring supplies, although the water-supplies of this place are of rather more than average hardness, one supply—viz., that of the Kent Water Company from the Orpington wells—being very hard indeed. But there is nothing new in all this, and I believe myself that the sole effect of rain or distilled water is that the imbibition of poisonous material, which produces a proliferating catarrh of the thyroid acini, is withdrawn. I am, Sirs, yours faithfully,

Westerham, August 26th, 1903. ARTHUR MAUDE.

INTESTINAL ANASTOMOSIS FOR PROLAPSED SMALL INTESTINE.

To the Editors of THE LANCET.

SIRS,—I read with great interest the case of Intestinal Anastomosis for Prolapsed Small Intestine by Mr. R. W. Murray in THE LANCET of August 22nd (p. 524) and I think that all will congratulate him on the success of his operation. The point that I wish to refer to, and which is, I think, of great importance to bear in mind when operating on a similar case, is the fact that the boy died two years after the operation and at the post-mortem examination it was found "that a portion of intestine which had been occluded—namely, 18 inches of the ileum, the cæcum, and ascending colon—was enormously distended, filling the greater part of the abdomen. It was entirely shut off from the rest of the gastro-intestinal tract and filled with offensive muco-purulent fluid." Some years ago a German surgeon drew attention to the fact that the mucous membrane of the intestines secreted a fluid which had all the appearance of ordinary fæces notwithstanding that no food had been introduced into the intestine for some considerable time. This statement appeared at the time I was making some experiments in intestinal surgery at the laboratory of the Royal Colleges of Physicians of London and Surgeons of England and to test the accuracy of the statement I performed the following operation on a dog. I withdrew some 12 inches of small intestine and cut it across at each end. I then washed the loop thus drawn out thoroughly by allowing a current of weak carbolic solution to run through it. Having thus cleansed it of its contents I invaginated both ends and closed them with a few stitches. I then united the proximal end of the divided intestine with the distal, thus re-establishing the intestinal tract, the detached loop of intestine was then returned into the abdomen, and the parietes were closed in the usual manner. The dog experienced no perceptible inconvenience from the operation and took its food as usual. The abdominal wound healed quickly. After a few weeks there was perceptible distension of the abdomen and the dog was killed some short time afterwards. On opening the abdomen the occluded loop of intestine was found, as in Mr. Murray's patient, to be enormously distended and congested. On opening it it was found to be filled with a most offensive fluid of the consistence of gruel and having all the appearance of ordinary fæces as found in the small intestine.

The point of practical interest which arises from Mr. Murray's case and from my experiment is, I think, that in any case similar to Mr. Murray's in which it is found necessary to occlude a portion of the intestine, it would be wise to establish a fistulous opening between the occluded loop and another portion of the intestinal tract or with the abdominal surface. In Mr. Murray's case possibly, if instead of dividing the transverse colon and invaginating the cæcal end he had been content with performing a lateral anastomosis the same object might have been obtained.

I am, Sirs, yours faithfully,

August 24th, 1903. FRED. BOWREMAN JESSETT.

THE TITLE OF "DOCTOR."

To the Editors of THE LANCET.

SIRS,—A small addition to the Medical Acts Amendment Bill would remove a notorious and long-standing grievance. Clause 21 deals with registration after passing a State final examination. If to that clause were added the words "and such registration shall confer the title of 'Doctor,'" diploma holders would then be placed in a fair position and the public would no longer be puzzled by the registered medical practitioner, to whom they have gone for medical assistance, telling them that he is not a "doctor." If desired the actual degrees or diplomas can be easily shown, as "Dr. Jones, L.S.A.," "Dr. Brown, M.D.," or even "Dr. Smith, F.R.C.S." There is no suggestion here of conferring a degree, but of legalising

the use of the word "Doctor" according to its dictionary meaning and its present accepted use by the public.

I am, Sirs, yours faithfully,

Barking-road, E., August 24th, 1903. PERCY ROSE.

ASEPTIC AND ANTISEPTIC SURGERY.

To the Editors of THE LANCET.

SIRS,—In THE LANCET of June 13th, p. 1697, is a letter under the above heading signed Robert Henderson, purporting to be an answer to my letter in your issue of May 30th, p. 1543 Mr. Robert Henderson accuses me of endeavouring to belittle the "general practitioner," and as I had no such intention I am sorry that my letter should have been construed as such. At the same time I hardly consider that Mr. Robert Henderson was justified in his remarks about the consultants, for I feel perfectly convinced that if any severe major operation had to be performed upon any near and dear relative of Mr. Robert Henderson's that he would not call in the ordinary general practitioner to do it but would select *la fleur l'élite* of the consultants.

I am, Sirs, yours faithfully,

FREDERICK DEANE, F.R.C.S. Edin.

Barbados, West Indies, July 17th, 1903.

SCIATICA AND THE HIP-JOINT.

To the Editors of THE LANCET.

SIRS,—The interesting paper on Sciatica by Dr. William Bruce in THE LANCET of August 22nd, p. 511, reminds me of a case which I had in hand some years ago. The patient was a man, aged 59 years, who had suffered for many years from arthritis deformans, the disease mainly affecting the hip-joints. He was also the victim of intense double sciatica and his lower limbs were useless for walking, compelling him to go on crutches. Three years before I saw him he had fallen downstairs, thereby sustaining an intracapsular fracture of the left femoral neck. Union was not good and he was left with an everting limb, but one result of the injury and of the treatment it engendered was that the sciatica almost entirely disappeared from the left leg. In the right leg it was as bad as ever. When I first saw him he had just met with a similar accident—a fall downstairs—this time sustaining an intracapsular fracture of the right femoral neck The treatment was extension with a weight over a pulley, the limb being kept in position with heavy sand bags. As a result there was good union with no subsequent evertion, and as a further effect cure of the sciatica on this side also. Was the cure of the sciatica to be ascribed to the prolonged rest or to the prolonged stretching of the nerve aided by the solution of continuity in the osseous core of the limb?

Dr. Bruce's aspersion on removal of the Gasserian ganglion for relief of tic douloureux seems to me to be a *non sequitur*. His "bold affirmation" of the invariably peripheral origin of the disease surely does not establish the "essentially barbarous" nature of the operation undertaken for its relief unless he has an alternative and less heroic cure to offer. Possibly Dr. Bruce does not mean that an operation which is "essentially barbarous" is therefore unjustifiable. Doubtless most of our operations will one day be regarded as meriting his epithet. But anyone who has suffered even for a short time from intense trigeminal neuralgia can well understand the willingness of a patient to undergo the most heroic operation promising relief when the affection is chronic and other treatment has failed to cure. The barbarity of procuring relief at any cost is surely in this disease purely theoretical.

I am, Sirs, yours faithfully,

J. S. MACKINTOSH, M.R.C.S. Eng., L.R.C.P. Lond.

Hampstead, August 24th, 1903.

OBSERVATIONS ON MASTICATION.

To the Editors of THE LANCET.

SIRS,—Dr. Harry Campbell in his instructive Observations on Mastication says that "tooth powder should not be used as a matter of routine" and that "antiseptic powders and washes are to be scrupulously avoided" since many of the bacteria "play a useful part as scavengers."

As this is opposed to the usual custom sanctioned by most dental surgeons, may I ask Dr. Campbell to give reasons for these statements—i.e., observations and experiments upon which they are based. I am, Sirs, yours faithfully,

August 25th, 1903. M.D.

NOTES FROM INDIA.

(FROM OUR SPECIAL CORRESPONDENT.)

Dispensary and Private Practice in the United Provinces.—The Volunteer Forces of India.—The Growing Plague Mortality.—Offences at Examinations.—The Want of Ambulances in Calcutta.—The Municipal Sanitary Administration of Indian Cities.

THE Inspector-General of Hospitals for the United Provinces raises a very important point with regard to dispensary and private practice in India which is not altogether without its parallel in England. He considers that the Government instead of encouraging the opening up of new dispensaries in villages should do all it can to encourage qualified native practitioners to settle in the villages and small towns. At present the medical officer of a dispensary has to attend the whole population and it is unquestionably bad policy to encourage the general population to expect gratuitous medical relief. To the objection the Lieutenant-Governor replies that it is not possible at present to substitute private practitioners for dispensaries, that private practitioners could not afford the appliances which are provided at the dispensaries, and that Western medicine has not sufficiently established itself in these provinces for men of the hospital assistant class to stand alone. Colonel Joubert also calls attention to the utter want of privacy in the treatment and examination of out-patients in most of the dispensaries and to the use of the ordinary bench or form on which the patients sat as a couch for examination. This may account for the very small number of female diseases returned in the registers.

In view of the faulty physique and want of fitness for service shown amongst the volunteers attending the Delhi Durbar to which I called attention the following return may be interesting:—

The Volunteer Forces of India; annual report.—Following is the full text of the annual report on the volunteer forces of India for 1902–03 by Major-General J. Stratford Collins, Inspector-General. The total strength of the volunteers in India for the year 1901–02 was 31,233; the strength for the year 1902–03 is 34,496 (an increase of 1263), made up as follows:—

Naval Volunteers	432	Railway Volunteer Rifles	11,569
Submarine Mining Engineers	140	Local Volunteer Rifles	11,464
Electric Engineers	46	Cadets	4,274
Light Horse	1,724	Reservists	792
Mounted Rifles	776	Total	32,496
Artillery	1,279		

During the year no new battalions or corps have been raised. Two railway corps (Bengal Nagapore Railway and the Great Indian Peninsula Railway) have been formed into two battalions each.

The plague mortality for India having sunk to its yearly minimum has during the past few weeks been slowly but steadily rising again. The increase as well as the mortality is almost entirely confined to the Bombay Presidency and the Mysore State, for which 1817 and 270 deaths respectively were recorded for last week out of a total in all India of 2284. The Punjab returned only 55 deaths, Bengal 29, the United Provinces 21, and the Hyderabad State 12.

An incident connected with the Grant Medical College, Bombay, illustrates the strong tendency so often shown in India to obtain illicit information. 15 first- and second-year medical students have been rusticated in consequence of their having committed "certain dishonest acts at the last terminal examination inasmuch as they copied." Government and municipal officers are well aware how frequently private information is surreptitiously obtained. Great precautions have to be taken at examinations to prevent students getting "outside" help and it would be better if examiners generally were more on the look-out for this offence and if they reported all delinquents accordingly.

The ambulance scheme for Calcutta to which I referred a little while ago has ended almost in a fiasco. Although the special committee of the corporation recommended that litters on wheels should be kept at certain stations in charge of the police and that special ambulances should be kept for the removal of infectious cases, the general committee disapproved of the latter and only sanctioned a few of the former and these are to be kept at the tramway depôts. The dangerous practice of using hackney carriages for infectious cases will therefore have to be continued and no help can be expected from the police in cases of accident. Comment is unnecessary, but that such a state of things should be permitted in the metropolis of India, with a population not far short of a million, is, to say the least, extraordinary.

The municipal administration of the towns in the United Provinces fails very markedly in sanitary matters. There were thousands more deaths than births and more than half the towns recorded a death-rate of over 40 per 1000. Some of the rates were: Brindaban, 78·8; Allahabad, 75·4; Benares, 66·4; Jaunpur, 91; and Cawnpore, 58·3. In Allahabad the roads have grown steadily worse, the street lighting is disgraceful, and the conservancy arrangements are very bad, while the Government has found it necessary to speak in strong terms against six boards for generally unsatisfactory results. The neglect of public duties by municipal bodies so constantly reported from different parts of India calls for the sanitary administration of the towns being taken from these incompetent representative bodies. In nearly every province it is the same and until English officers of health with powers behind them are appointed we shall see very little improvement.

August 7th.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

"Criminal Neglect" and the Charge of Manslaughter.

THE charge of manslaughter arising out of the collapse of three cottages in Ancoats, by which two little girls lost their lives, has fallen through. The inquest was reported in THE LANCET of August 15th, p. 497. The hearing of the case took place before one of the stipendiary magistrates, Mr. E. Brierley, on August 12th. Of the three cottages the two outer ones were uninhabited, having been condemned many years ago; the middle one unhappily escaped condemnation and was occupied, though its condition must have been thoroughly bad, for on one occasion it is said that "one of the stairs gave way and fell into the cellar," and in March last "the snow came in through the bad places in the ceiling." These things were remedied but no thorough inspection was made as to the safety of the structure. One of the houses adjoining had lost half its slates and the rain beat through against the party wall, "which had also been partially undermined in the cellars. So rickety was the whole fabric that the manager of a saw-mill across the street ordered his men to unload their heavy logs gently for fear of shaking it down," and the tenants thought that the unloading of a large boiler opposite was "a main factor in the actual collapse." But nobody was to blame. The agent, who was the defendant, thought that he need not do anything unless the tenants or the corporation complained, and they did not complain. The counsel for the prosecution said that attitude meant a shifting of the blame on to the shoulders of the tenants or the corporation, and contended that it was not good in law. For the defence it was held that the prosecution had to prove, according to law, "that the defendant had been guilty of negligence of a personal character—negligence that might be called substantial or gross negligence—and they had also to prove that the alleged negligence was the cause of the death of the children." It was submitted that these points had not been proved "and that the defendant had carried out his duties in the common and universal way," and that he ought not to be sent to trial "unless there was a great probability that upon the evidence he would be convicted." No doubt, happily for the defendant, this is good law, for it was endorsed by the stipendiary who expressed the opinion that it was not a case "in which he ought to send the defendant for trial on a charge of manslaughter" and discharged the defendant. All will perhaps agree that the wretched tenants should not be held responsible. This dwelling was probably the cheapest shelter they could get and perhaps the best they could afford. It was clearly held that the corporation could not be made responsible and just as clearly that the agent "had discharged his duty in the way it was universally discharged" and was therefore blameless. The owner of the property, said to be an old lady at Southport, who perhaps knew nothing of the condition of her property, however desirable that might have been, was scarcely mentioned in the case, and so it came about that nobody was held accountable for this slaughter of the innocents. This is most encouraging for all jerry-builders, owners of slum property, and their agents. For other people it may seem an unfortunate—some would say a disgraceful—state of things, not reflecting credit on any of those blameless people nor even on the corporation of Manchester with its one inspector of dangerous property.

The Hospital Fund.

The amount raised this year in Manchester and Salford for the Hospital Sunday and Saturday Fund is larger than for several years past. The Sunday collections have, however, fallen, while the Saturday returns have increased. The former come to £3922, which is, indeed, a great improvement on last year's collections, but much lower than in 1873 when they nearly reached £6000. The Saturday returns this year come to £4463, the largest amount yet received from this source. It is difficult to account for the reduction of the Sunday collections, but there have been many other heavy calls on the charitable during the last few years and it may also be that some of the gifts have been diverted from the Sunday to the Saturday Fund. There does not seem to be much doubt that among the more thoughtful and respectable of the working classes this Hospital Saturday scheme has brought out an honourable feeling in favour of self-help, and those familiar with the work of our hospitals are aware that such a feeling has not hitherto been too general. The Saturday and Sunday collections (£8385), with a balance from last year of over £426 and bank interest, gave the fund a total of £8851. Administrative expenses amounted to £619. The committee have been able to distribute £8000 to the various medical charities and to carry forward £231 10*s.* 4*d.* to next year. Though a long way behind some other towns, it is encouraging that this year there is an increase and we may hope that it is an earnest of greater efforts in the future.

"Trucking" in Workhouses.

The "Truck system" which was abolished long ago outside the workhouses seems to have lingered in these institutions, if we may judge by what occurred at the meeting of the Chorlton board of guardians on August 14th. A number of regulations were adopted, on the recommendation of the workhouse committee, "with the object of preventing the continuance in the workhouse of what is known among the inmates as the 'trucking system.'" All money in possession of the inmates is to be taken possession of by the master and applied towards the cost of their maintenance. Special food ordered by the medical officer is to be prepared by the nurses in the hospital kitchen and a teacher in invalid cookery is to be appointed to instruct the probationer nurses. And in order to avoid the retention in the hospital wards of convalescent patients fit to be discharged the resident medical officers will be expected to call the attention of the visiting medical officers to patients who, in their opinion, are sufficiently recovered to leave the hospital. In the main these regulations are no doubt good, but it almost seems as if the inmates possessed of any money were expected to be permanent residents, for what little they have is to be spent in their maintenance, so that when they leave—if ever they do—they will be absolutely destitute, without means to provide a lodging or to supply their immediate wants. One does not envy the position of one of the "deserving poor" suffering from misfortune in such circumstances, and he, more than the chronic loafer, will be a fit recipient of Poor-law relief. The appointment of a teacher of invalid cookery is an admirable innovation. The last regulation does not appear to be complimentary to the visiting medical officers, as it assumes that their attention would not be drawn to the condition of the convalescents unless it were roused by the superior vigilance of the resident medical officer.

A Third Water Main from Thirlmere.

Powers have been asked for in the Corporation Bill to borrow money for providing a third pipe from Thirlmere, which will be required as soon as the second is completed. Mr. Hill, the engineer, said he believed that the increase in the water consumption was due largely to increased use rather than to an increase in the number using it. The estimated cost is £650,000 and in addition £200,000 are wanted for the extension of the water mains in the area of distribution. The corporation now supplies 1,100,000 people.

August 25th.

WALES AND WESTERN COUNTIES NOTES.

(FROM OUR OWN CORRESPONDENTS.)

The Glamorganshire County Council.

AT the termination of an inquest held at Aberdare, Glamorganshire, on August 19th the coroner remarked that

the county council made no provision for the making of analyses of contents of the stomach, &c., in cases which the coroner might consider requisite. He added that he thought it most desirable that the services of the county analyst should always be available on such occasions. The jury agreed with the coroner and passed a resolution that the county council should be approached with a view of obtaining that object.

The late Mr. Mark Whitwill.

The late Mr. Mark Whitwill, who died recently at Bristol, was the founder of the Bristol Royal Hospital for Children and Women and for more than 40 years was its president and honorary treasurer and took the greatest interest in the institution. The committee of the hospital are desirous of having some memorial in connexion with the Children's Hospital to perpetuate his memory and are appealing for £4000 to endow one of the existing wards, which is to be hereafter named the "Mark Whitwell."

Vaccination in the West of England.

At the meeting of the Axbridge board of guardians held on August 18th it was reported that from July 1st to Dec. 31st 455 births had been registered; of this number 263 had been successfully vaccinated and 93 received certificates of conscientious objections. At the meeting of the Bideford board of guardians held on August 18th it was stated that during the last six months of 1902 281 children were registered; of this number 230 were successfully vaccinated and ten received exemption certificates. The Exeter board of guardians at their meeting on August 18th stated that during the second half year of 1902 400 births were registered; 307 of these were successfully vaccinated and only five received certificates of exemption. At the meeting of the St. Thomas's (Exeter) board of guardians held on August 14th it was reported that from July to December, 1902, there were 528 births. Of that number 457 were successfully vaccinated; four were insusceptible to vaccination; five were conscientious objectors; 41 died unvaccinated; in four vaccination was postponed for medical reasons; and 17 removed to other districts.

Obituary.

Mr. Samuel Nathaniel Elliot died at his residence, Whiteford-road, Plymouth, on August 9th. The deceased, who received his medical education at University College Hospital, obtained the qualifications of M.R.C.S. Eng. and L.S.A. in 1842 and 1843 respectively. Shortly after he qualified Mr. Elliot commenced practice in Dartmouth and remained there for many years, afterwards coming to Plymouth. He took a great interest in the volunteer movement and was one of the original members of the old 6th Devon Volunteer Corps (Dartmouth), joining as surgeon; after serving for 25 years he retired with the rank of surgeon-major and received the long-service medal. Mr. Elliot was a great sportsman and was well known in the hunting field some years ago. He was highly respected and was on the Commission of the Peace for the borough of Dartmouth. The funeral took place on August 18th at South Milton, near Kingsbridge, Devon, which has been the last resting-place of the family for many generations.

The Housing of the Working Classes in Monmouthshire and Glamorganshire.

Several of the sanitary authorities in Monmouthshire and Glamorganshire are taking steps to provide houses for the working-class inhabitants of their districts. In Newport owing to the expiration of the leases of many of the old houses these are being replaced by better dwellings fitted with modern sanitary conveniences. Courts are thus being gradually got rid of and open spaces around houses have increased. The new houses which are being erected by private builders appear to be quite sufficient for the increase of population, but there is a deficiency in the number of small cottages obtainable at a low rental. A special committee of the town council has been considering the question for some months and in April last recommended that 66 houses of two and three rooms with a scullery should be built by the corporation. After a considerable amount of discussion and some adverse criticism at successive meetings of the council the committee's scheme was finally sanctioned on August 11th last. At Abercarn, a large and increasing colliery district in the western valleys of Monmouthshire, the district council has been active during the past two years in providing suitable houses and has applied to the Local Government Board for sanction to borrow £6850 for the purpose of erecting dwellings to let at a rental of 4*s.* and 5*s.* weekly. The medical officer of health of Bedwellty (Mr. H. T. Evans), in his last annual report, said that the most urgent and pressing need of the whole district was additional houses, for many of the existing cottages were insanitary, ill-ventilated, and not fit to be tenanted. A large number of them were occupied by more than one family and in one instance two families lived in an old stable. Some dwellings, he said, would have been condemned long ago had there been other suitable houses for the occupants to go to. At the last meeting of the Bedwellty district council the chairman said that private owners were taking advantage of the inaction of the council and were tyrannising over their tenants. In Merthyr Tydvil 100 houses have been provided by the district council and the desirability of doing something in this direction is being discussed by the Pontypridd council. In the Rhondda valley the trades-union lodges are attempting to deal with the problem, which does not appear to have been seriously considered by the sanitary authority, although in his recently issued annual report the medical officer of health (Dr. J. D. Jenkins) stated that the demand for houses in the district continued to be in excess of the supply and it was an almost daily complaint that a house at a rental of from 4*s.* to 6*s.* per week could not be obtained. At the last census one-third of the 22,000 tenements in the Rhondda contained less than five rooms, while 1000 of the 2330 three roomed houses were each occupied by more than four persons. But the most conclusive evidence of the need for more houses in the district is to be found in a table, inserted in the report referred to, which shows that among 1611 houses in which cases of infectious disease occurred during 1902 there were no less than 767 occupied by more than one family. The death-rates in the Rhondda last year did not compare very favourably with those recorded in the other large towns of England and Wales and the members of the district council might with advantage consider whether a death-rate from all causes of 19·2 per 1000 and an infantile death-rate of 178 per 1000 births in a naturally healthy locality is not, to some extent, the result of inadequate housing accommodation.

Compensation for the Loss of Diseased Cattle.

The Wells (Somerset) rural district council has memorialised the Board of Agriculture, urging the desirability of compensating farmers and others who in good faith sell apparently healthy cattle which upon being slaughtered are found to have been suffering from tuberculous or other diseases. The memorial is being indorsed by most of the district councils in Somersetshire.

The Renewal of the Vaccination Act.

At the last meeting of the Herefordshire county council a resolution was passed expressing the opinion that primary vaccination and revaccination at or about the age of 12 years should be made compulsory, that the control of the carrying out of the Vaccination Acts should be transferred from the boards of guardians to the county councils, and that greater facilities for the supply of pure glycerinated lymph should be afforded.

August 25th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Public Health of Dublin.

IN ordinary circumstances the population of the city of Dublin is much larger during what is known as the horse-show week—which commenced this year on August 23rd—than at any other time. In the presence of this overcrowding it is satisfactory to note that the health record is unusually favourable. At the fortnightly meeting of the public health committee held in the municipal buildings on August 19th the superintendent medical officer of health reported that during the week which ended August 15th the death-rate from all causes was 19·2 per 1000 persons living, while the mean death-rate in the corresponding period of the previous ten years was 26. The zymotic death-rate was 0·9 per 1000, comparing very favourably with the mean rate of the last ten years, which was 5·6 for the corresponding week. Referring to the latter Sir Charles Cameron said: "The zymotic death-rate is probably the lowest on record. I have looked through the mortality statistics of the last 20 years and have found no zymotic death-rate so low for this period."

Dispensary Medical Officers and their Holidays.

The quarrel between the guardians and the dispensary medical officers in Ireland continues. Dr. A. M. Love, medical officer of Drumquin Dispensary, was granted two weeks' holiday by the Omagh guardians on condition that he would procure a substitute at £2 2*s.* per week. The medical officer wrote saying that he was unable to do this and the guardians replied that on his complying with their conditions he could have his holidays, to which the Local Government Board (on its attention being drawn to the matter) wrote the guardians reminding them of the altered state of the law. Recoupment can in future be obtained out of the local taxation (Ireland) account of one-half of the remuneration paid by the guardians, with the sanction of the Local Government Board, to the medical practitioners employed as substitutes for the medical officers of the dispensary districts of the union during the absence from duty of these officers on vacation. In these circumstances the Omagh guardians were directed to reconsider their former decision. At a specially summoned meeting the chairman (Mr. G Murnagham, M.P.), who has been greatly opposed to the claims of the dispensary medical officers, said the amount that they would receive would depend on the amount which they paid in 1902 for substitutes. There would not be a recoupment in all cases where the guardians gave holidays to their medical officers. There had been, he said, a smart trick played in the House of Commons when the Irish Members were absent by inserting a certain provision into the Act which precluded any union which was not granting its medical officer a holiday at the particular time when the Act was passed from getting any benefit. The chairman eventually (at the meeting of the guardians on August 22nd) was directed to write asking the Local Government Board if the recoupment could be made without any restriction as to the amount paid in 1902. At a meeting of the Ballymena guardians on August 22nd a letter was read from the Local Government Board stating that the sum of £2 2*s.* per week proposed by the guardians as remuneration for a substitute for the medical officer during the latter's absence on holidays was insufficient, and intimating that unless the guardians could arrange for the employment of a sub-stitute for Mr. R. Currie at a reasonable remuneration, Dr. W. R. Davidson having refused to act at the fee named, the Board would be obliged to use its powers and to direct the guardians to pay a suitable fee. The guardians then granted several applications for holidays on condition that the medical men would arrange for substitutes at £2 2*s.* per week. It is hoped that the Local Government Board will send down a sealed order compelling the guardians to pay the proper remuneration.

Derry Infirmary.

Mr. R. Lee Hogg, a member of the committee of the Londonderry Infirmary, has intimated his intention of subscribing 500 guineas towards the building fund, an adequate sum to be ear-marked for the internal decorations of the old building. It is given as a token of gratitude to the King and Queen for their recent visit to the hospital as well as a recognition of the very real interest that their Majesties have always shown in hospitals and in their work. Quite recently Mr. Hogg expended £700 upon the institution on the occasion of their Majesties' late visit. Mr. Hogg had the enterprise to do up and to decorate the children's ward, so that it will not require any attention for a long time and he has supplied the house-surgeon with sets of valuable and useful instruments. At the monthly meeting of the Derry Infirmary committee held on August 18th the best thanks of the committee were tendered to Mr. Hogg for his generous gifts.

Typhus Fever on Arranmore.

I regret to report another serious outbreak of typhus fever on the island of Arranmore, five miles off the coast of Donegal. The place will be recollected as the scene of the heroic efforts of the late Mr. W. Smyth, medical officer of Buntonport, and Dr. B. McCarthy, medical inspector of the Local Government Board, to convey patients from the island to the fever hospital on the mainland some time ago, when the former contracted typhus fever and died. At a meeting of the Glenties board of guardians held on August 24th Dr. McCarthy reported the outbreak, and said further that not only in the houses in which the fever arose but in those upon which he had last year unfavourably reported there had been no real improvement. There were all the elements present to breed a preventable disease—unhealthy houses, inadequate windows, clay floors, damp walls, defective roofs, and people huddled and crowded together sleeping in unhealthy beds with deficient covering, supplemented with clothes worn during the day. The island belonged to the congested district boards which offered to carry out repairs, but the occupiers declined to contribute a small assistance. There was no pressure of public opinion or pressure from the sanitary authority, and the people continued to live in houses not fit for a pig. No medical man and no nurse should be asked to look after typhus fever in such surroundings with the certainty that they would take the disease and, perhaps, like Mr. Smyth, succumb. Dr. McCarthy implored the guardians to remedy the state of affairs existing on the island and to have the houses carefully inspected. The population is about 1300 in 250 houses on the island, with no proper provision for the separation of the sexes, no sanitary accommodation, and in many cases cattle and fowl are kept in the dwelling-houses. The guardians decided to instruct the sanitary sub-officer to see if he could get the vacant barracks or any other house on the island suitable for a hospital.

August 25th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Tsetse Fly and Sleeping Sickness.

M. E. BRUMPT of the Bourg de Bozas Mission, recently made before the Society of Biology some observations which are worthy of notice, concerning the possible methods of inoculation of the malady of sleeping sickness. This disease is due to a parasite, as is well known, but it is not certain whether it is a trypanosoma, as Castellani and Bruce consider, or whether it is some other micro-organism. It is certain, however, that the pathogenic agent must be introduced into the organism by some method or another in the case of persons affected with sleeping sickness, for it does not exist in them naturally. There are many methods by which inoculation can take place, but the most probable, in M. Brumpt's opinion, is inoculation by the tsetse fly which, as is well known, is the agent in the transmission of the disease known as nagana in domestic animals. M. Brumpt further says that there is a striking coincidence between the geographical distribution of sleeping sickness and that of the tsetse fly. The disease exists in all territories where the fly is found and wherever the fly exists the disease can acclimatise itself. Sleeping sickness was formerly only known in the Lower Congo. Nowadays, however, it has reached the Higher Congo and the country through which the tributaries of this river flow. Here it was formerly unknown, although the tsetse fly existed. On the other hand, if one cannot say that sleeping sickness exists everywhere that the tsetse fly is found it is at least possible to state that wherever the fly is absent there also sleeping sickness is absent. It cannot, at least, arise there, although assuredly patients who have contracted the disease in a tsetse-fly-haunted region may, having travelled away, find themselves in all quarters of the globe. One fact which goes to prove the importance of the tsetse fly is the following. In a tsetse-infected region the flies live chiefly along the borders of the rivers and sleeping sickness is much more frequent in similar situations than in the inland territories. Here is a case which is very significant with regard to this point. At Banamia, close to Coquilhaville, there is a mission worked by Belgian Trappists, about 20 minutes' walk from the bank of the Congo. On the banks of the river some years ago there used to live some 3000 Lolo fishermen. At the present time these fishermen number about 300, all the rest having succumbed to sleeping sickness. On the other hand, close to the mission buildings there was a village of cultivators who very rarely went down to the river and who drank spring water. Among these cultivators sleeping sickness is extremely rare. The facts which M. Brumpt cites are well worthy of consideration. If his hypothesis should be verified it is obvious that some means should be taken to combat a disease which decimates the indigenous population just as much as a disease transmitted by the same insect decimates horses and cattle. Enormous obstacles are put in the way of the exploration and civilisation of the widespread territories of the African continent by the tsetse fly.

The New Asylums for the Aged in Paris.

As is well known the Assistance Publique has not enough beds, more especially as regards making provision for the aged. Those to whom this state of affairs seems unsatisfactory have not failed to remark that, in the recent scheme of reorganisation of hospital provision hospitals only and not asylums are set down as being about to increase the number of their beds. M. Mesureur, director of the Assistance Publique, and the Conseil de Surveillance have been considering how to fill up this void and the administration has recently come into possession of two large properties which are intended to become magnificent asylums for the aged. The first is at Aulnay Sous-Bois (Seine) and the second is at St. Firmin-en-Vineuil (Oise). Each asylum is calculated to hold 150 pensioners. The buildings are already in existence and only want a certain amount of work expended upon them to fit them for their new functions. At the asylum of St. Firmin the amount of money which will have to be annually expended by a pensioner will vary from 250 to 300 francs. Just at present only 54 beds are in working order, but it is hoped that this number will be rapidly increased by means of gifts from charitable persons. A third similar establishment is going to be opened just outside Paris by the Assistance Publique in the month of October next. This will be an asylum for young girls who are convalescing from illness or simply run down and anæmic. This asylum will, in accordance with the desire of the founder, take the name of St. Joseph. The house stands in a beautiful situation, quite in the open air, at Pontourny in the commune of Beaumont (Indre et Loire) and 48 young girls will be able to be received there.

August 25th.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

Cardiac Diseases and the Army.

THE military authorities have become aware of a considerable increase of cardiac diseases in the army as well as among the conscripts. Whilst the number of soldiers suffering from cardiac troubles was 1·5 per 1000 during the period from 1881 to 1886, it rose to 3·1 in 1900. Of the conscripts in 1894, 9·9 per 1000; in 1896, 13 per 1000; and in 1898, 17·4 per 1000 showed symptoms of cardiac diseases and were thus considered unfit for service in the army. Cardiac diseases prevail especially in certain districts of the empire, a fact which may be connected with the spread of influenza in these regions. In the army reports the cases of cardiac disease are classified as pericarditis (35 cases), endocarditis (612 cases), nervous troubles (759 cases), and other diseases of the heart (126 cases). The military authorities being desirous of ascertaining the causes of the increase of cardiac troubles have asked the scientific council of the army medical academy to give their opinion of the matter. The report of the council, of which Dr. Kraus, professor of clinical medicine, Surgeon-General Stricker and Surgeon-General Landgraf are the authors, directs the attention to some social evils to which young men are especially exposed: over-exertion in work, insufficient time to rest, abuse of spirits and tobacco, extravagances in sport of every kind, and finally the spread of hysteria and neurasthenia must be regarded as the principal causes. Moreover, the prevalence of influenza has undoubtedly contributed to the increase of cardiac diseases. According to the authors' opinion conscripts with organic diseases of the heart are totally unfit for military service, whilst those suffering from functional troubles only may eventually be able to serve in certain branches of the forces, especially in the cavalry. The report insists on a careful examination of the hearts of recruits and conscripts and recommends the use of the radiographic apparatus for that purpose, together with a special training of the army medical officers in the modern methods of diagnosis.

The Diagnosis of Cholera.

The German commission for the study of cholera in Egypt, presided over by Professor Kolle of the institution for infectious diseases, has published a short report in the *Deutsche Medicinische Wochenschrift*. The report mentions Koch's method of preliminary cultures in pepton solutions, the principal value of this method being the possibility of detecting single individuals of the cholera vibrio within a mixture of other bacilli. It must, however, be remembered that the pepton solution is not a specific soil for the cholera vibrio only but for other vibrios also. Practically, vibrios which were very like Koch's vibrio were detected in the bowels in a greater number of cases than it was hitherto supposed, but by the agglutination test their non-identity with the genuine vibrio of cholera was ascertained in every instance. Of 73 cases examined during the recent epidemic, in 59 Koch's vibrio was detected, in two cases another vibrio very similar to the specific cholera bacillus was found to be present at the same time, whilst in the remainder of 14 cases vibrios of different species were found. Of the latter cases five were apparently not cholera from a clinical point of view; in seven, where the clinical symptoms of cholera had developed, the presence of the pseudo-cholera vibrio was only accidental; in four cases a certain diagnosis could not be formed owing to the want of a trustworthy history. The report further states that the serum test by bacteriolysis as well as by agglutination reacted positively in every case of genuine cholera and even in cultures of no or very little virulence; on the other hand, none of the genuine cholera cultures showed a positive reaction in any of the sera obtained from the pseudo-cholera cases and none of the 16 pseudo-cholera cultures reacted positively against the genuine cholera sera; moreover, the individual species of pseudo-cholera microbes were agglutinated only by their own sera and not by any of the others. There were also marked differences in the morphological condition of some of the pseudo-cholera vibrios; in five cases the species had several flagella, one species had no power of moving, and three species when injected into pigeons produced general septicæmia and belonged to Metchnikoff's vibrio. The practical result of the investigations carried out by the commission was that by the preliminary pepton-water cultures, by the agar-plate culture, and by the agglutination test the diagnosis was ascertained within 16 hours; the theoretical result was that the specific action of Koch's vibrio was again proved.

The Degree of M.D.

In the winter semester of 1902-03 631 medical men took the degree of M.D. at the Universities of Germany. Of this number 98 candidates graduated from Leipsic, 65 from Munich, 62 from Kiel, 45 from Berlin, 41 from Greifswald, 38 from Strasburg, 33 from Bonn, 29 from Freiburg, 28 from Königsberg, 26 from Halle, 24 from Heidelberg, 20 from Rostock, 19 from Würzburg, 18 from Marburg, 17 from Tubingen, 16 from Jena, 15 from Breslau and Giessen respectively, 14 from Erlangen, and 8 from Göttingen. Three of the candidates were women, of whom two were Russian and one German. It is remarkable that the number of graduations at the individual universities is not at all in accordance with the number of matriculated students, as Berlin, which has the greatest number of medical students, takes only the fourth place as to graduations, whilst Leipsic being the third as to the number of medical students has more than double the number of graduates in medicine. The cause is that the examination for the degree of M.D. is little more than a formality, especially now that the new regulations allow the degree to be conferred on Germans only when they have previously passed the State examination. Therefore, medical men like to present themselves at any university where the fees are the most moderate and the examination the easiest to pass, and Leipzic was known long ago to fulfil both conditions. The Berlin examination is expensive and relatively difficult to pass. But for the foreigners who are accustomed to take the degree at that university where they have performed their curriculum and are at liberty to present themselves without having passed the State examination, the number of graduations in Berlin would be still smaller, as nearly one-fourth of the Berlin doctors of medicine are foreigners.

August 23rd.

AUSTRALIA.

(FROM OUR OWN CORRESPONDENT.)

Pharmacy Board of New South Wales.

THE annual report of the Pharmacy Board has been submitted to the Legislative Assembly of New South Wales. During the year 60 applications for registration under the Pharmacy Act were granted, making the total number of pharmacists registered 840. Poison licenses had been granted to 62 pharmacists and annual poison licences to

216 storekeepers. The board had held a preliminary and a final examination, 32 candidates passing the former and 11 the latter. Reciprocity with the Pharmacy Boards of Victoria and South Australia had been successfully established and pharmacists registered in any one of the three States would be entitled to practise in the other two. A great deal of work had been done in explaining the provisions of the Poisons Act and warning the public of the danger in dealing with poisons and the direct result was that the reported cases of poisoning in New South Wales had decreased considerably—in fact, up to 50 per cent.—under the board's administration of the Act.

Hospital Affairs.

Plans have been prepared for a new hospital for women in Sydney. The new building will provide for the work hitherto carried on by the Benevolent Society and the Women's Hospital under one control, an amalgamation of the two bodies having been effected. According to the plans the administrative block is placed in the centre, separating two main wards, one on either side. One of these is for obstetric work and consists of two large ward blocks each containing about 50 beds, with the necessary offices. On the other side are two wards for the gynæcological or women's hospital, providing accommodation for 50 beds each. In addition there is a separate block containing the operating theatre, attached to which are surgical wards. The complete plans provide for an out-patients' department to be erected at the Oxford-street entrance, and also in other parts of the grounds isolation wards, nurses' home, laundry, and other small buildings needed for the requirements of an institution of this nature. At the present time, however, it is proposed to build as a first instalment accommodation for 100 beds on the maternity side and for a similar number in the women's hospital section, together with an operating theatre. The balance of work will be completed when funds are available and in the meantime Flinton, the existing house, will be used as the administrative block. In the completed design this block is connected with the wards on either side by a loggia on each floor, which can be converted into a closed passage as desired. This leads into a central lobby, from which secondary corridors give access to the main wards and other rooms. The administrative block is carried to a height of three floors, while the ward blocks are each four storeys. The buildings are to be carried out in brick, with stone dressings and slate roof, and the site selected for the main blocks occupies practically the extent of the frontage. The buildings are placed in an elevated position and the ground falls rapidly to Glenmore-road. This gives an uninterrupted view of the harbour across Rushcutters' Bay. In planning the building every effort has been made to secure light and air and as far as is possible the internal construction will be of fire-proof materials. The first section, which will be put in hand at an early date, will cost somewhere about £20,000.—On June 10th the Premier of New South Wales formally opened the new buildings of the Royal North Shore Hospital at St Leonards, Sydney. The hospital was being opened with accommodation for 50 patients, and the cost of the building so far erected, when fully equipped, would be about £25,000, but when completed, according to the architect's plans, the number of beds would be 200. The design, however, being on the pavilion principle these extra beds could be added by degrees as the calls on the institution warranted such additions being made.—Mr J. M. Creed, M.L.C., has been appointed a director of the Sydney Hospital in the room of Dr Mackellar, M.L.C., who has resigned the position.—The committee of the Melbourne Hospital has decided to establish a department for diseases of the nose and throat. Dr. R. R. Scawell has been appointed physician to out-patients at the Melbourne Hospital in place of Dr. Daish resigned. Dr. W. B. Walsh, Dr. A. Lewers, and Mr. J. G. Sheahan have been appointed physicians to out-patients at St. Vincent's Hospital, Melbourne.

Obituary.

Mr. Alexander Philip, a well-known Sydney medical practitioner, died at his residence, Abertoyle, Jersey-road, Paddington, on May 30th after an illness extending over three months. He was the son of Colonel Philip of the Austria-Hungary military forces and was born in Budapest in 1847. After studying medicine in the military school at his native place he proceeded to London where he pursued his studies. He arrived in Sydney in 1868 and commenced business as a chemist in Surry Hills. After being well established he left the care of the business to a manager and proceeded to Ireland. He entered King and Queen's College and in 1877 obtained the degree of licentiate of the Royal College as a physician and in midwifery. In the following year he obtained the degree of licentiate at the Royal College of Surgeons, Ireland. Upon his return to Sydney the late Dr Philip commenced the practice of his profession in Devonshire-street and was known as a successful practitioner. In private life the deceased gentleman was highly esteemed for his many good qualities. He took a deep interest in the Masonic craft and was a Past Master of the Empress of India Lodge. He was also a linguist and possessed considerable musical attainments. He married the third daughter of the late Dr. R. von Schomburgk, for many years director of the Botanic Gardens, Adelaide. The deceased has left a widow and family of five sons.

July 13th.

Medical News.

LITERARY INTELLIGENCE.—Messrs. W. B. Saunders and Co. have the following new books in preparation:—"A Text-book of Operative Surgery," by Warren Stone Bickham, M.D., assistant instructor in operative surgery, Columbia University, New York; "A Text book of Clinical Anatomy," by Daniel N. Eisendrath, A.B., M.D., professor of clinical anatomy, medical department of the University of Illinois, Chicago; "A Text-book of Diseases of Women," by Barton Cooke Hirst, M.D., professor of obstetrics, University of Pennsylvania; "A Text-book of Obstetrics," by J. Clarence Webster, M.D., F.R.C.P.Edin., professor of obstetrics and gynæcology in Rush Medical College, in affiliation with the University of Chicago; "A Thesaurus of Medical Words and Phrases," by Wilfred M. Barton, A.M., M.D., assistant to the professor of materia medica and therapeutics and lecturer on pharmacy, Georgetown University, Washington, D.C., and Walter A. Wells, M.D., demonstrator of laryngology, Georgetown University, Washington, D.C.; and "A Manual of the Practice of Medicine," by A. A. Stevens, A.M., M.D., lecturer on physical diagnosis, University of Pennsylvania.—Messrs. Smith, Elder, and Co. announce a new work by Dr. A. Ransome, author of "The Treatment of Phthisis," entitled, "The Principles of Open-air Treatment of Phthisis and of Sanatorium Construction." Besides setting forth the need and the advantages of sanatoriums, with details of their construction, the work will include an essay on the pure-air treatment of phthisis in the home.

THE NORTH DEVON INFIRMARY, BARNSTAPLE.—The seventy-seventh annual meeting of the governors of this institution was held on August 18th. The report stated that during the preceding 12 months 666 in-patients had been admitted and 2541 out-patients had been treated. The average daily number of in-patients was 42 and the average stay was 24 days. The financial statement showed that the ordinary income for the last year was £2158 and the ordinary expenditure £2610 and an unfavourable balance of £452 remained. The chairman (Mr. W. Hiern) stated that it was ten years since the ordinary income covered the ordinary expenditure.

DEATH OF W. T. SCOTT, M.A., M.B., C.M. ABERD.—Dr. W. T. Scott of Stalybridge died on August 23rd, at the early age of 36 years. He was a native of Aberdeen, but had been settled in Ashton and Stalybridge, which are practically one town, for about 12 years. He was an honorary surgeon to the Ashton District Infirmary and about a month ago scratched a finger while performing an operation in the infirmary. Blood poisoning followed and in spite of all that medical skill could do he gradually sank, adding one more to the long list of medical martyrs. At the inquest the coroner said that "Dr. Scott died at the post of duty, and expressed his own and the jury's sympathy with the bereaved relatives."

THE NOTIFICATION OF SMALL-POX.—It is reported that the health committee of Burton on Trent has decided to prosecute two medical men for failing to notify a case of small-pox. The case occurred at an inn and when discovered by the medical officer of health was said to have given rise to 18 other cases.

DONATIONS AND BEQUESTS.—Under the will of the late Mr. W. Cadge of Norwich £5000 are bequeathed to the trustees of the Earl of Leicester's endowment for the benefit of the Norfolk and Norwich Hospital, and £1000 to the Royal Medical Benevolent College for the endowment fund for pensions.—Mr. H. W. Stubbin, who died recently at Cheltenham, bequeathed £1000 to the Cheltenham General Hospital for the purpose of endowing a bed, a condition being that the bed should never be used by any "professed or suspected anti-vaccinator," nor "by any relative, servant, or other connexion of an anti-vaccinator, professed or suspected."—In April, 1897, the year of the sixtieth anniversary of the reign of our late Queen, a fund called the "Queen Victoria Commemoration Fund" was raised in Manchester to show the "close union which exists between the sympathies of the Queen and the sentiments of her subjects." The amount raised was £17,511 15*s.* 5*d.* and with the addition of bank interest allowed it reached the sum of £19 210 17*s.* 5*d.* A statue of the Queen was placed in Piccadilly and this, with other incidental expenses, cost over £6000, leaving a balance of £13,178 9*s.* 7*d.* At a meeting of the subscribers to the fund it was resolved, on the motion of Sir F. Forbes Adam, seconded by Mr. E. S. Heywood, who was for many years the chairman of the infirmary board, "that the balance of the fund now in hand be transferred to the managers of the Manchester Royal Infirmary." The subscribers present unanimously expressed the hope that the board of management of the infirmary would take steps, before the completion of the new buildings, specially to appropriate the contribution from this fund as a permanent memorial of the late Queen.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

BYRNE, J. P., L.R.C.S. Irel., has been appointed House Surgeon to the Provincial Hospital, Port Elizabeth, South Africa.

JAMES, WALTER EVELYN, M.R.C.S., L.R.C.P. Lond., has been appointed Senior Medical Officer for the Blaenavon Workmen's Fund in connexion with the Blaenavon Iron and Coal Works.

JOHNSON, MAURICE B., M.B., Ch.B. Aberd., has been appointed House Physician and Surgeon to the Aberdeen Royal Infirmary.

MACPHERSON, R. B., M.D. Glasg., has been appointed Certifying Surgeon under the Factory Act for the Cambuslang District of the County of Lanark.

MAYNARD, GEORGE DARELL, F.R.C.S. Edin., M.R.C.S., L.R.C.P. Lond., has been appointed Medical Officer for the Roche and St. Dennis District by the St. Austell (Cornwall) Board of Guardians.

SANDOE, J. W., M.D. Durh., has been appointed Certifying Surgeon under the Factory Act for the Silverton District of the County of Devon.

SCOTT, W. T., M.B., B.C. Cantab., has been appointed House Physician to the Royal Berks Hospital, Reading.

SECRETAN, W. B., M.B. Lond., F.R.C.S., has been appointed House Surgeon to the Royal Berks Hospital, Reading.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BIRKENHEAD BOROUGH HOSPITAL.—Junior House Surgeon. Salary £80 per annum, with board and washing.

BIRMINGHAM AND MIDLAND EYE HOSPITAL.—Resident Surgical Officer. Salary £100 per annum, with board and attendance.

BIRMINGHAM AND MIDLAND HOSPITAL FOR SKIN AND URINARY DISEASES, John Bright-street, Birmingham.—Clinical Assistant for three months. Honorarium at rate of 52 guineas per annum.

BRIGHTON, HOVE, AND PRESTON DISPENSARY.—House Surgeon. Salary £160, with rooms, coals, gas, washing, and attendance.

BRISTOL DISPENSARY.—Two Medical Officers.

BURY INFIRMARY.—Junior House Surgeon.—Salary £90, with board, residence, and attendance.

CAMBRIDGE LUNATIC ASYLUM, Fulbourn.—Second Assistant Medical Officer, unmarried. Salary £120 per annum, with board, lodging, and attendance.

CARLISLE, CUMBERLAND INFIRMARY.—Resident Medical Officer, as House Physician for first six months and House Surgeon for ensuing six months. Salary at rate of £80 and £100 per annum respectively, with board, lodging, and washing.

CHELSEA HOSPITAL FOR WOMEN, Fulham-road, S.W.—Clinical Assistants.

CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL AND DISPENSARY.—Resident House Physician and Surgeon. Salary £120 per year, with board, apartments, and laundry.

COVENTRY AND WARWICKSHIRE HOSPITAL.—Assistant House Surgeon for six months. Salary at rate of £50 per annum, with rooms, board, washing, and attendance.

DEWSBURY AND DISTRICT GENERAL INFIRMARY.—House Surgeon. Salary £100 per annum, with board, residence, and washing.

DOWN DISTRICT LUNATIC ASYLUM, Downpatrick.—Junior Male Assistant Medical Officer, unmarried. Salary £100 per annum, with apartments, board, washing, &c.

EAST LONDON HOSPITAL FOR CHILDREN AND DISPENSARY FOR WOMEN, Shadwell, E.—House Surgeon for six months. Honorarium of £25, with board, residence, &c. Also Medical Officer for the Casualty Department for six months, renewable. Salary at rate of £100 per annum.

ESSEX AND COLCHESTER GENERAL HOSPITAL.—House Surgeon. Salary £100 per annum, with board, washing, and residence.

GLOUCESTER, BARNWOOD HOUSE HOSPITAL FOR THE INSANE.—Junior Assistant Medical Officer, unmarried. Salary £150 a year, rising to £170, with board and residence.

GLOUCESTER GENERAL INFIRMARY AND GLOUCESTERSHIRE EYE INSTITUTION.—Assistant House Surgeon for six months. Remuneration at rate of £30 per annum, with board, residence, and washing.

HARTLEPOOLS HOSPITAL.—House Surgeon. Salary £100 per annum, with board, washing, and lodging.

HOSPITAL FOR DISEASES OF THE THROAT, Golden square.—Anæsthetist. Also Senior Clinical Assistant.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.—Radiographer.

KENT COUNTY ASYLUM, Chartham, near Canterbury.—Third Assistant Medical Officer, single. Salary £140, with board, apartments, attendance, and washing.

KNIGHTON UNION.—Medical Officer and Public Vaccinator. Salary £40 per annum.

LIVERPOOL, WEST DERBY UNION WORKHOUSE AND HOSPITAL, Walton.—Assistant Resident Medical Officer, unmarried. Salary £125 per annum, with board, apartments, &c.

LONDON TEMPERANCE HOSPITAL, Hampstead-road, N.W.—Assistant Resident Medical Officer. Honorarium at rate of 50 guineas per annum, with board, washing, and residence.

MANCHESTER CHILDREN'S HOSPITAL.—Junior Resident Medical Officer, unmarried. Salary at rate of £80 a year, with board and lodging.

METROPOLITAN HOSPITAL, Kingsland-road, N.E.—House Physician, House Surgeon, Assistant House Physician, and Assistant House Surgeon, all for six months. Salary of two former at rate of £40 a year, of two latter at rate of £20 a year. Also Casualty Officer, Pathologist, and Registrar. Salary at rate of £150 per annum.

PARISH OF BARRA.—Medical Officer and Public Vaccinator. Salary £119.

PRESTON ROYAL INFIRMARY.—Assistant House Surgeon. Salary £60 per annum, with board, lodging, washing, &c.

SALFORD ROYAL HOSPITAL.—Junior House Surgeon for six months. Salary £70 per annum.

SHEFFIELD ROYAL INFIRMARY.—Junior Assistant House Surgeon. Salary £70 per annum, with board, lodging, and washing.

SOUTHPORT INFIRMARY.—Resident Junior House and Visiting Surgeon, unmarried. Salary at rate of £70 per annum, with residence, board, and washing.

STAFFORDSHIRE GENERAL INFIRMARY, Stafford.—House Surgeon. Salary £120 per annum, with board, lodging, and washing. Also Assistant House Surgeon. Salary £80 per annum, with board, lodging, and washing.

TOTTENHAM HOSPITAL, London, N.—Honorary Anæsthetist.

WEST HAM HOSPITAL, Stratford, E.—Junior House Surgeon. Salary £75 per annum, with board, residence, &c.

WEST LONDON HOSPITAL, Hammersmith-road, W.—House Physician. Also House Surgeon. Both tenable for six months. Board and lodging provided.

Births, Marriages, and Deaths.

BIRTH.

PEARSE.—On Aug. 21st, at St. George's terrace, Trowbridge, the wife of James Pearse, M.D., of a son.

MARRIAGES.

TYLOR—WOOD.—On Tuesday, the 18th inst., at St. John's Church, Redhill, by the Rev. A. L. Locke, assisted by the Rev. G. B Riddell, Max Forster Tylor, M.A., M.B. Oxon., of 6, The Crescent Wisbech, second son of Louis Tylor, Esq., of Redhill, to Laura Anna Gray, youngest daughter of the late Lieut.-Colonel Robert Hudson Wood, 67th Regt., and of Mrs. Wood, of Bishop's Stortford.

WILLIAMSON—MACKICHAN.—On Thursday, August 20th, at the United Free Church, Bombay, by the Rev. Dr. Mackichan, father of the bride, assisted by Revs. R. MacOmish and Alex. S. Crichton, John Rutter Williamson, M.D., of Miraj, Bombay Presidency, sixth son of D. Williamson, Esq., J.P., Surrey, England, to Edith Eliza, elder daughter of Rev. Dr. Mackichan, LL.D., M.A., Principal of Wilson College, Bombay, and Vice-Chancellor of the University of Bombay. American and Colonial journals please copy.

DEATHS.

BOLTON.—On August 22nd, at Dorset-square, London, Alfred Bolton, M.R.C.S., L.R.C.P., D.P.H., fourth son of the late Edward Bolton of Warrington and Mrs. Bolton of King's Norton, Worcestershire.

CORFIELD.—On the 26th inst., at Marstrand, Sweden, in his 60th year, William Henry Corfield, M.D., of 19, Savile-row, London, Sanitary Adviser to His Majesty's Office of Works.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

INFECTIOUS DISEASES NOTIFICATION FEES.

To the Editors of THE LANCET.

SIRS,—The Infectious Diseases (Notification) Act provides a fee of 2*s.* 6*d.* in the case of private patients and 1*s.* in respect of cases attended as medical officer of any public body or institution. The latter, I have always considered, referred to medical officers to a workhouse or hospital. I am a district medical officer under a union and in that capacity have visited and "notified" pauper patients and have only been paid 1*s.* for these cases. Has it ever been officially or legally decided under which category a district medical officer would come?

I am, Sirs, yours faithfully,

August 19th, 1903. BETA.

*** The district medical officer visits pauper patients as part of his official duties—i.e., as medical officer of a public body. It would therefore appear that he is entitled to a fee of 1*s.* for every such notification. We do not know of any legal decision having been given in the matter.—ED. L.

COLONIAL APPOINTMENTS ON THE WEST COAST OF AFRICA.

To the Editors of THE LANCET.

SIRS,—In reply to your correspondent "C. L.," in THE LANCET of August 22nd (p. 580), allow me to say that as regards climate the latest West African statistics show a percentage of 2½ constantly sick in hospital for white troops. The returns of the Church Missionary Society and the Nonconformist missionary societies show an even greater mortality than the army returns, although the missionaries are invariably total abstainers. Three facts may help intending applicants to form an idea of the climate. No boat ever reaches England from West Africa without having had a death. The number of deaths within two years of leaving the coast if published would for ever keep white men from West Africa. No West African resident has ever done anything after leaving West African service. The duty on foodstuffs varies from 10 to 50 per cent.; living in the larger towns is perhaps the most expensive in the world as a consequence. If a house or quarters are provided a young and careful man can live on from £300 to £350 per annum. It is obvious that the terms offered by the Colonial Government are totally inadequate to the danger and cost of living.

I am, Sirs, yours faithfully,

August 24th, 1903. COLONIAL.

*** This view of the colonial appointments is more unfavourable than the circumstances warrant.—ED. L.

COFFEE AFTER DINNER.

OUR annotation under the above heading, which appeared in THE LANCET of July 18th, p. 177, has incited various correspondents to ask how the coffee jelly is made. The following recipe has the merit of simplicity and yields a jelly of satisfactory consistence and coffee flavour. The coffee should be freshly and finely ground from good light roasted berries:—Three ounces of coffee, three ounces of sugar, and half an ounce of gelatin. Make three-quarters of a pint of good coffee infusion, exercising all due care to prevent loss of aroma and oils; dissolve the gelatin in a quarter of a pint of water, mix all the ingredients together and keep near boiling until the gelatin is dissolved; pour through a jelly bag into a mould.

SANITATION AND BUNGALOWS.

To the Editors of THE LANCET.

SIRS,—Your anonymous correspondent's amazing travesty of the facts in THE LANCET of August 15th (p. 508), in reference to the above subject, I think, in justice to the inhabitants of "Bungalow Town," Shoreham, requires more than passing notice. I will state as briefly as I can the manner in which the soil, &c., are disposed. Each bungalow is supplied with two enameled pails, one for the water-closet and one for greasy water, &c. Three men are employed during the busy summer season, each having about 70 bungalows under his control. He devotes an average of about five minutes to each one of these bungalows. Starting at 4 A.M. he finishes about 10 A.M.; consequently, I need hardly point out, it is impossible to have the work attended to simultaneously, or even approximately so, in all the bungalows and, as a result, some residents are bound to receive attention later than others. These residents make their bathing arrangements accordingly, as they know the time that the sanitary man attends to their particular bungalow. The pails being emptied are scoured and a certain quantity of clean shingle and salt water is deposited in the water-closet pail.

The theatrical picture painted by your correspondent in such lurid colours depicts a scene that only has being in his own imagination. The sea is the most powerful natural deodoriser in the world and the infinitesimal amount of soil emptied from these 200 bungalows into a vast and ever-moving body like the ocean leaves in a few seconds nothing offensive to sight or smell. In even any well-regulated house the conditions are not so favourable. There, when the commode is used, it has to be taken through the passage of the house. In the case of the bungalows the pails are drawn through a trap-door straight into the open air. Then, again, in depositing into the sea we are only following out, on a very small scale, the example of Brighton, Worthing, and other places. Brighton, with something like 180,000 inhabitants, empties its sewage at low water on to the shore and the same thing occurs at Worthing. The medical officer of health has examined these bungalows and has expressed his entire satisfaction with them. Several medical men own bungalows and consider the place the healthiest of communities. It is true that now and then a "crank," whose hypersensitive ideas lead him into hysterical denunciations, appears in our midst, but the opinions of such are treated at their true valuation by those who really know what a bungalow sanitation is. If your correspondent is so disgusted I am surprised that he should rent one of these habitations and recuperate his health in such a foetid atmosphere.

I am, Sirs, yours faithfully,

Shoreham, August 21st, 1903. WM. SWALES.

PICRIC ACID IN THE TREATMENT OF BURNS.

To the Editors of THE LANCET.

SIRS,—I think your correspondent Mr. J. Johnstone Redmond may be interested by a brief statement of my experiences with regard to the use of picric acid in burns. For two years I was resident medical officer at the Bolingbroke Hospital for Accidents in Wandsworth, and in this institution we were called upon to treat an astonishing number of this class of cases. We used picric acid invariably, the strength of the stock solution being 1 in 200, used on lint with the addition of an equal quantity of warm water. This strength is, I believe, quite as efficacious as would be a stronger solution. Not only is its application painless, but it seems actually to nullify pain in a surprisingly short time. One case especially stands out very vividly in my mind and a word about it will answer the query as to whether harm is likely to result from its prolonged use. The patient was a little girl, aged about five years, who was under the impression that an admirable way of getting thoroughly warm would be to sit in an oven. The result was disastrous, for the poor child was burnt from the occiput to the nates—a deep burn—involving the entire back. She was with us nearly a year, during which time we found that picric acid was by far the best dressing. Towards the end a slight plastic operation was deemed necessary. Eventually the patient made a perfect recovery.

No remedy is so swift to cure as picric acid, although the above case may seem to belie this statement; it must be remembered, however, that we were dealing with a truly terrible lesion—one which I am convinced must have been fatal had any other treatment been adopted.

While on the subject I may say that in several cases of severe burns there was a marked and repeated tendency to collapse; eventually I gave orders that in all my cases, whenever the temperature became markedly subnormal, a rectal injection of warm saline solution should be given. The results from this were most satisfactory.

In conclusion, I may tell your correspondent that burns treated with picric acid are almost entirely free from smell. In every way I feel sure that he will find it the very best dressing yet known.

I am, Sirs, yours faithfully,

ERIC M. PERKINS, M.R.C.S. Eng., L.R.C.P. Lond.

Richmond, August 24th, 1903.

L.R.C.P.E. & R.C.S.E.—We do not approve of the suggested plate and we are certain that our correspondent would find that his medical colleagues would also dislike the innovation. But we do not suppose that the General Medical Council would find that any professional fault had been committed. The better course would be for the newcomer to communicate to the medical profession in the town the direction of special practice which he intends to follow.

Bar.—Our correspondent's course is to apply to the Treasury Office of one of the Inns of Court for a copy of the regulations concerning admission to the Inn of Court of which he may choose to be a member. There are four Inns of Court—viz., Lincoln's Inn, the Middle Temple, the Inner Temple, and Gray's Inn.

Irish.—"First Aid to the Injured," by S. Osborne, F.R.C.S. The St. John Ambulance Association, St. John's Gate, Clerkenwell, also publishes diagrams and a syllabus which will be found useful to those desirous of giving lectures.

Medicus.—Our correspondent will find the information for which he asks us in the Students' Number of THE LANCET, which will appear on Sept. 5th.

During the week marked copies of the following newspapers have been received: *Revista Medica de S. Paulo, The Bulletin (New South Wales), Prince Alfred Hospital Gazette (Sydney, New South Wales), Bristol Press, Glasgow Daily Record, Daily Mail, Times, Morning Advertiser, Morning Post, Daily News, Daily Chronicle, The Engineer, Evansville Courier (Ind. U.S.A.), Sunday Journal News (Ind. U.S.A.), Hong-Kong Telegraph, The Welshman (Carmarthen), Westminster Gazette, Hertfordshire Mercury, Windsor and Eton Express, South Wales Daily News, Manchester Guardian, City Press, Mid-Sussex Times, Walsall Advertiser, Herts Advertiser, Times of India, Mining Journal, Local Government Chronicle,* &c.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, August 27th, 1903.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radia in Vacuo.	Maximum Temp. Shade.	Min. Temp	Wet Bulb.	Dry Bulb.	Remarks at 8.30 A.M.
Aug. 21	29·57	W.	0·27	116	68	54	55	57	Cloudy
,, 22	29·84	S.W.	...	112	70	52	55	58	Hazy
,, 23	29·82	S.W.	...	113	69	52	54	59	Fine
,, 24	29·74	S.E.	0·10	111	67	54	56	57	Raining
,, 25	29·71	W.	0·68	79	60	55	56	58	Raining
,, 26	30·22	S.W.	0·08	110	68	50	53	56	Fine
,, 27	30·11	W.	...	119	71	56	57	60	Fine

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (31st).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynecological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Royal Orthopædic (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.).

TUESDAY (1st).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Royal Ear (3 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.).

WEDNESDAY (2nd).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.) National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Ormond-street (9.30 A.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.) Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M).

THURSDAY (3rd).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat, (9.30 A.M.), St. Mark's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.).

FRIDAY (4th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.).

SATURDAY (5th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MONDAY (31st).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—4 P.M. Mr. Edwards: Surgical Cases. (Surgical Wards.)

TUESDAY (1st).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Mr. Paget: Surgical Cases. (Lecture Room.)

WEDNESDAY (2nd).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Dr. Robinson: Bacteriology in Gynæcology.

THURSDAY (3rd).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Mr. Edwards: Rectal Fistula. (Lecture Room.)

FRIDAY (4th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—3.30 P.M. Dr. Taylor: Medical Cases. (Medical Wards.)

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Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

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